



**The Great Grid Upgrade**

Sea Link

# Sea Link

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Part 4 Marine

Chapter 11

Inter-Project Cumulative Effects

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# 11. Inter-Project Cumulative Effects

## 11.1 Introduction

- 11.1.1 This chapter of the Environmental Statement (ES) presents how the inter-project cumulative effects assessment has considered the potential significant cumulative effects that may arise from the Offshore Scheme with 'other developments'. A description of inter-project cumulative effects and the methodology is presented in **Application Document 6.3.1.5.A Appendix 1.5.A Cumulative Effects Assessment Methodologies**.
- 11.1.2 The Order Limits, which illustrate the boundary of the Proposed Project, are illustrated on **Application Document 2.2.1 Overall Location and Master Key Plan** and the Offshore Scheme Boundary is illustrated on **Application Document 2.2.4 Offshore Location and Key Plan**.
- 11.1.3 This chapter should be read in conjunction with:
- **Application Document 6.2.4.1 Part 1 Introduction Chapter 4 Description of the Proposed Project;**
  - **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology;**
  - **Application Document 6.2.1.6 Part 1 Introduction Chapter 6 Scoping Opinion and EIA Consultation;**
  - **Application Document 6.2.4.1 Part 4 Marine Chapter 1 Physical Environment;**
  - **Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology;**
  - **Application Document 6.2.4.3 Part 4 Marine Chapter 3 Fish and Shellfish Ecology;**
  - **Application Document 6.2.4.4 Part 4 Marine Chapter 4 Marine Mammals;**
  - **Application Document 6.2.4.5 Part 4 Marine Chapter 5 Marine Ornithology;**
  - **Application Document 6.2.4.6 Part 4 Marine Chapter 6 Marine Archaeology;**
  - **Application Document 6.2.4.7 Part 4 Marine Chapter 7 Shipping and Navigation;**
  - **Application Document 6.2.4.8 Part 4 Marine Chapter 8 Commercial Fisheries; and**
  - **Application Document 6.2.4.9 Part 4 Marine Chapter 9 Other Sea Users.**
- 11.1.4 This chapter is supported by the following appendices:
- **Application Document 6.3.1.5.A Appendix 1.5.A Cumulative Effects Assessment Methodologies;**
  - **Application Document 6.3.1.5.B Appendix 1.5.B Inter-Project Cumulative Effects Initial Long List;**

- **Application Document 6.3.1.5.C Appendix 1.5.C Inter-Project Cumulative Effects Initial Short List;** and
- **Application Document 6.3.4.11.A Appendix 4.11.A Descriptions of Other Projects.**

11.1.5 This chapter is supported by the following figure:

- **Application Document 6.4.4.11 Inter-Project Cumulative Effects**

## 11.2 Assessment

### Stage 1

#### Review of the Zone of Influence (ZOI)

- 11.2.1 The first step in identifying the long list was to establish the Zone of Influence (ZOI) for the Offshore Scheme. **Application Document 6.3.1.5.A Appendix 1.5.A Cumulative Effects Assessment Methodologies** presents how the ZOI has been defined based upon the largest study area of the Offshore technical chapters and then doubling that area in order to identify a long list of 'other developments'. These study areas take into account environmental influences such as metocean<sup>1</sup> conditions originating at distance from the Offshore Scheme and the wide-ranging nature of mobile species.
- 11.2.2 During Scoping an overall cumulative assessment ZOI of 31 km was proposed. This was based upon the Offshore Scheme potentially resulting in disturbance effects of up to 5 km for marine mammals from geophysical surveys, and other developments which could have a disturbance effect up to 26 km (impact piling and high order unexploded ordnance (UXO) detonation). However, this is an iterative process, and it is acknowledged that there are a number of proposed offshore wind farm developments in the North Sea that, if progressed, would be undertaking piling activities which would have a larger ZOI in comparison to the activities for the Proposed Project.
- 11.2.3 It should be noted that clearance of UXO, which can generate significant underwater sound levels, will be subject to a separate marine licence application for the Proposed Project when the number and location of detonations have been identified. Therefore, effects from UXO clearance are not considered in this assessment.
- 11.2.4 This ZOI has been backchecked as part of this ES to take account of any changes in the proposed study areas since scoping. The study areas applied in the technical chapter numbers 1-9 are summarised in Table 11.1. The rationale for these study areas is explained in the relevant technical chapters 1-9 of Part 4. These study areas were presented during Scoping and discussed with stakeholders prior to submission of this ES as required. The initial long list of other developments presented in **Application Document 6.3.1.5.B Appendix 1.5.B Inter-Project Cumulative Effects Initial Long List** has been updated to reflect any additional other developments that have been considered since Scoping.

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<sup>1</sup> Meteorological and oceanographic conditions i.e. ocean currents, wave height and speed, wind speed and direction, tidal range, water and air temperature.

**Table 11.1 Study areas for environmental topics**

Environmental topic	Study areas
Physical Environment	Regional
Benthic Ecology	10 km from Offshore Scheme Boundary
Fish and Shellfish	17 km from Offshore Scheme Boundary (based on the maximum ZOI distance), with a regional approach for the consideration of migratory fish.
Marine Mammals	Inter-Agency Marine Mammal Working Group (IAMMWG)/Special Committee on Seals (SCOS) Marine Management Units
Marine Ornithology	10 km from Offshore Scheme Boundary
Marine Archaeology	Offshore Scheme Boundary
Shipping and Navigation	10 NM from Offshore Scheme Boundary
Commercial Fisheries	International Council for the Exploration of the Sea (ICES) Rectangles 31F1, 32F1, and 33F1
Other Sea Users	10 km from Offshore Scheme Boundary

## Stage 2

- 11.2.5 Table 11.2 below presents the short list of other developments considered during stage 1 and 2. This list has been kept under review throughout the preparation of this ES and has been updated as required. Where other developments have been struck through (example) this is because they were previously identified for inclusion but are not now being included because the development has been withdrawn, completed or expected to be complete prior to the construction of the Proposed Project and therefore is considered as part of the baseline for the preliminary assessment.
- 11.2.6 Other developments that following a review of the ZOI, were previously unknown or that have been identified through stakeholder engagement since Statutory Consultation have been added in bold (**bold**). Operational projects presented in Table 11.2 identified by stakeholders are included due to their ongoing operational and maintenance requirements identified within their respective EIAs.
- 11.2.7 For other fully operational projects, i.e. those developments that will be completed prior to the Proposed Project construction activities and where little to no operation and maintenance activities are expected, these have been considered as part of the future baseline conditions reported in Part 4 of this ES. These projects therefore are not considered as part of the inter-project cumulative appraisal reported by this chapter. This includes the following developments:
- Atlantic Crossing 1;
  - Mercator;
  - Pan European Crossing; and
  - Tangerine.

**Table 11.2 Major developments ‘Short List’ to be considered in the Inter-Project Cumulative Effects Assessment (CEA)**

Other development	Development description	Tier	Distance from the Offshore Scheme (km)
Sizewell C Nuclear Power Station	A proposed expansion of the Sizewell nuclear licence site north of Sizewell B Nuclear Power Station. This will accommodate two new European pressurised reactors (EPR) with a 3.2 GW electricity generation capacity. This will provide electricity for 6 million homes. This project is currently under construction.	1	5
NeuConnect Interconnector	A proposed 1.4 GW capacity offshore multipurpose interconnector (MPI) project from Wilhemshaven, Germany to the Isle of Grain, Kent developed by Meridam, Allianz Capital and Kansai Electric Power. This project aims to be the first energy connection between the UK and Germany in order to transfer energy between the two countries and increase grid capacity for increased electricity demand and supply from offshore wind assets. The offshore aspects of this development are the High Voltage Direct Current (HVDC) subsea cable and cable landfall location.	1	0
GridLink Interconnector	A proposed 1.4 GW capacity offshore MPI project from Dunkerque, France to Kingsnorth, Kent developed by iCON Infrastructure LLP. It aims to transfer energy between the UK and France providing electricity to 2.2 million homes. Additionally, it aims to improve grid capacity for increases in offshore wind electricity generation. The offshore, coastal and intertidal components of the project will consist of the following: HVDC Subsea Cable & Landfall Location.	1	0
North Falls Offshore Windfarm	The main Offshore Wind Array will be located off the Essex and Suffolk coastline developed by Scottish and Southern Electricity (SSE) and RWE. The wider array will be split over two separate arrays cumulatively consisting of 71 wind turbine generators across a 150 km <sup>2</sup> area. The maximum wind turbine height will be 397 m above Mean High Water Spring (MHWS) and will be supported by either monopile, pin pile, suction caisson, or Gravity Base Structure foundations.	2	0



Other development	Development description	Tier	Distance from the Offshore Scheme (km)
East Anglia ONE North Offshore Windfarm	<p>A proposed 208 km<sup>2</sup> wind farm developed by Scottish Power Renewables (SPR) consisting of 67 turbines with a combined electricity generation capacity of 800 MW, an extension of the existing East Anglia ONE array. It is part of the East Anglia Hub which includes three arrays off the coast of Suffolk.</p> <p>Each wind turbine being 300 m above the Lowest Astronomical Tide (LAT) and will use either 3-4 leg jackets on piles or suction caissons, monopiles of Gravity Base structures as foundations and will be placed between 33 m to 67 m deep.</p>	1	0.36
East Anglia TWO Offshore Windfarm	<p>A proposed 255 km<sup>2</sup> wind farm developed by SPR consisting of 75 turbines. Each turbine will have an electricity generation capacity of 19 MW and 22 m high above MHWS. The foundations will either use 3-4 leg jackets on piles or suction caissons, monopiles of Gravity Base structures and be placed between 33 m to 67 m deep.</p>	1	0.36
East Anglia THREE Offshore Windfarm	<p>A proposed 370 km<sup>2</sup> wind farm developed by SPR and Vattenfall consisting of 120 to 240 wind turbines with a combined electricity generation capacity of 1200 MW It is part of the East Anglia Hub which includes three arrays off the coast of Suffolk, with the East Anglia THREE array being 79 km from Lowestoft, Suffolk. All wind turbines are located in a water depth of 35 m to 45 m with the tip of the turbine blade 245 m above LAT. Each turbine will be secured with whether jacket on piles, tripods on piles, Gravity Base structures, suction caissons or monopiles foundations. Specific foundation designs will be decided later as the development progresses.</p>	1	0
Nautilus Offshore Interconnector	<p>A 1.4 GW capacity MPI connecting Belgium with the Suffolk Coast being developed by National Grid Ventures (NGV) The aim will be to increase transfer in offshore wind electricity generation and improve grid capacity in both countries to achieve this. The offshore aspect of the development includes: Subsea HVDC connecting the Belgian landfall with the UK landfall in Suffolk and Offshore HVDC converter platform.</p>	3	0
Five Estuaries Offshore Windfarm	<p>A proposed 149 km<sup>2</sup> wind farm jointly developed by RWE 37 km off the Suffolk Coast. The array consists of 79 turbines with a combined electricity generation capacity of 50 GW. Each turbine will be between 397 m high above MHWS with a</p>	2	0

Other development	Development description	Tier	Distance from the Offshore Scheme (km)
	337 m rotor diameter tip to tip. Turbines will be anchored by either monopile, suction bucket monopile, pin piled or Gravity Base monopile foundations.		
LionLink (formally Eurolink) Offshore Interconnector	A 1.8 GW MPI connecting the Netherlands and the UK developed by NGV. The aim will be to increase transfer in offshore wind electricity generation and improve grid capacity in both countries to achieve this. This aims to advance key NGV and UK Government goals including transitioning to Net Zero by 2030, enhancing energy security and affordability. The offshore aspect of the development includes: Subsea HVDC connecting the Belgian landfall with the UK landfall in Suffolk and Offshore HVDC converter platform.	3	0
Hanson Aggregate Marine Ltd Area 528/2	The application and option area for the exploration and extraction of marine aggregates	3	0.1
<b>NEMO Link</b>	<b>Constructed and operational submarine interconnector connecting Richborough Energy Park in Kent, UK to Zeebrugge, Belgium. This development has been added in following Statutory Consultation with Stakeholders.</b>	<b>1</b>	<b>0</b>
<b>Thanet Offshore Windfarm</b>	<b>Constructed and operational, the Thanet Offshore Windfarm is located approximately 7 miles (11 km) off the coast of Thanet district in Kent, England. The windfarm array sits 0.6 km<sup>2</sup> from the Offshore Scheme. The Thanet Offshore Transmission Owner (OFTO) export cables intersect the Offshore Scheme on approach to the Kent Landfall. This development has been added in following Statutory Consultation with Stakeholders.</b>	<b>1</b>	<b>0</b>
<b>London Array Offshore Windfarm</b>	<b>Constructed and operational, the London Array offshore windfarm, covers an area of 122.5 km<sup>2</sup>, lying 1.2 km to the west of the Offshore Scheme boundary. The project consists of 175 turbines. This development has been added in following Statutory Consultation with Stakeholders.</b>	<b>1</b>	<b>1.2</b>

Note: a distance of zero indicates that projects intersect.

- 11.2.8 The tables below provide a summary of stage 1 and 2 of the Offshore Scheme inter-project cumulative effects assessment. These tables provide details for the 'other developments' listed above and identifies which of the topic specific ZOIs the 'other development' falls within and evaluates if the 'other development' should be taken forward to stage 3 and 4 of the assessment.
- 11.2.9 It should be noted that Nautilus will not be included in the inter-project cumulative effects assessment for the Suffolk Onshore Scheme due to the lack of sufficient information about Nautilus in order to conduct a meaningful cumulative effects assessment. However, Nautilus will be included in the inter-project cumulative effects assessment for the Offshore Scheme. It is acknowledged that the Offshore corridors of Nautilus and Sea Link will inevitably cross and that where this crossing occurs there are likely to be similar sources of impact on the marine offshore environment resulting from installation of the two marine cables; text has therefore been retained to reflect this, as relevant.

**Table 11.3 Matrix summarising stage 1 and 2 of the Inter-Project CEA - Sizewell C Nuclear Power Plant**

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Physical Environment	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases.	<p><u>Construction</u></p> <p>Simultaneous cable installation operations with the placement of the input cooling pipelines for Sizewell C which are to be located 3 km offshore (5.38 km northeast of the Proposed Project).</p> <p>Simultaneous/overlapping construction operations may increase the amount of sediment disturbed and released into the water column, increasing water column turbidity and potentially releasing contaminants into the water column reducing water quality. However, as the Proposed Project is predicted to have only negligible effects, this impact is <b>screened out</b> from further assessment as significant cumulative effects are considered highly unlikely.</p> <p>A wider area of seafloor morphology and seafloor morphological features (i.e. bedforms) may be altered during simultaneous installation activities. However, as the Proposed Project is predicted to have only negligible effects, this impact is <b>screened out</b> from further assessment as significant cumulative effects are considered highly unlikely.</p> <p>Local hydrodynamic, wave and sediment transport regimes (Minor)</p>	Yes



Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p><u>Operation.</u></p> <p>Changes to sediment transport regimes leading to change to coastal geomorphology due to the presence of buried rock protection at the HDD exit pits.</p>	
Benthic Ecology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases.	<p>The boundary for all offshore developments at Sizewell C is approximately 5 km northeast of the Offshore Scheme. This distance is within the ZOI for the temporary increase in SSC and sediment deposition, thus there is potential for cumulative effects via this impact pathway.</p> <p>To mitigate against the introduction and spread of INNS via the addition of cable protection, all rock and concrete mattresses used for cable protection will be clean and from a suitable source (control measure BE03 in <b>Application Document 7.5.3.1 Appendix A Outline Code of Construction Practice</b>) and an INNS Management Plan and Marine Biosecurity Plan has been produced to provide a framework for preventing the introduction and spread of INNS associated with the Proposed Project (control measure BE01 in <b>Application Document 7.5.3.1 Appendix A Outline Code of Construction Practice; Application Document 7.5.12 Outline Invasive Non Native Species Management Plan; and Application Document 7.7 Marine Biosecurity Plan</b>). Therefore, the risk of a cumulative impact from the accidental introduction and spread of INNS is expected to be Not</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>Significant, and this impact pathway is not considered further within the cumulative effects assessment.</p> <p>Furthermore, drilling fluid discharges from the Proposed Project HDD operations will be single events over a short period of time. All drilling fluids used, will be selected from the OSPAR List of Substances/Preparations Used and Discharged Offshore (2021) which are considered to 'Pose Little or No Risk to the Environment' (PLONOR). Additionally, where entry/exit points are in the intertidal area (i.e. at the southern landfall) drilling fluid will be captured where possible (control measure LVS05 in <b>Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice</b>). Therefore, although the potential dispersion of suspended particles is considered to be a maximum of 17 km (<b>Application Document 6.2.4.1 Part 4 Marine Chapter 1 Physical Environment</b>), the volume of HDD drilling fluid will be very limited and the regular tidal movement in the intertidal zone acting to disperse and dilute any drilling fluid released. Thus, the risk of a cumulative impact from changes to marine water quality from the use of drilling fluids is expected to be Not Significant, and this impact pathway is not considered further within the cumulative effects assessment.</p>	
Fish and Shellfish Ecology	Yes	Yes	Potential overlap between construction phases	The Proposed Project and Sizewell C Nuclear Power Plant will not physically overlap and is located over 5 km away. However, this project does fall within the ZOI for this receptor. Therefore, there is potential for the	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				overlapping construction operations to result in cumulative effects from temporary increase in SSC and sediment deposition and underwater sound.	
Marine Mammals	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	<p>The boundary for all offshore developments at Sizewell C is approximately 5 km northeast of the Offshore Scheme. If construction phase activities for both projects are simultaneous, cumulative effects from underwater sound generating activities and indirect effects from impacts to prey species have the potential to occur. However, as both projects will be adopting standard JNCC guidance, and the spatial overlap is likely to endure for only a very short amount of time, cumulative effects are not likely and this impact pathways is screened out.</p> <p>There will be a small number of vessels involved in the Construction and Operational phases Proposed Project activities, and it is assumed a small number associated with Sizewell C. The anticipated vessels are unlikely to cause cumulative disturbance effects given the high level of local shipping traffic and low density of marine mammals in the ecoregion. Therefore, effects from airborne sound and visual disturbance and marine mammal collision risk have been screened out of further consideration.</p> <p>The accidental release of pollutants could occur from any of the vessels associated the Proposed Project and</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Sizewell C. However, as Proposed Project activities will adhere to relevant guidance, and comply with all relevant health, safety, and environmental legislation to ensure that the risk of accidental spills is ALARP, The likelihood of an accidental spillage occurring is considered very low and this impact pathway has been screened out of further consideration.	
Marine Ornithology	Yes	Yes	Potential overlap between construction phases	An Environmental Impact Assessment and Habitats Regulations Assessment has already been carried out for the Sizewell C Nuclear Power Plant which included the recommendation of mitigation measures.  Simultaneous construction activities in and adjacent to the marine environment could increase the levels of disturbance to birds occurring in the marine environment. However, the Sizewell C Offshore Works are considered to be located at a suitable distance away (approx. 5 km) from the Proposed Project for significant cumulative effects to occur, particularly given the mobile nature and low sensitivities to disturbance in the marine environment shown by gulls and terns. Appropriate commitments are also provided in the Sizewell C EIA to secure suitable mitigation measures to minimise project specific impacts. However, there remains a <b>potential for significant cumulative effects</b> related to the disturbance of the red-throated diver.	Yes
Marine Archaeology	Yes	Yes	Potential overlap during the construction,	An Environmental Impact Assessment and Habitats Regulations Assessment has already been carried out for the Sizewell C Nuclear Power Plant which included	No



Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			operation and decommissioning phases.	<p>the recommendation of mitigation measures. The projects will not physically overlap and are located approximately 5 km apart.</p> <p>With regards to seabed heritage receptors (known and potential maritime and aviation features) located within the Proposed Project area, it is unlikely that they will be indirectly impacted by changes to the Physical Environment environment caused by the construction or operation of the nuclear power plant.</p> <p>Relevant shared receptors include:</p> <ul style="list-style-type: none"> <li>• known and potential palaeogeographic features and prehistoric material;</li> <li>• known and potential maritime and aviation sites and associated finds;</li> <li>• coastal and intertidal heritage assets relating to coastal/marine activity (known and potential palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features); and</li> <li>• the historic seascape character of the region.</li> </ul> <p>Relevant shared impact pathways include:</p> <ul style="list-style-type: none"> <li>• physical disturbance activities causing direct damage and/or loss to marine archaeological receptors including their setting;</li> </ul>	

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes; and</li> <li>project works that temporarily or permanently change the character of the historic seascape of the region.</li> </ul> <p>Recommended mitigation implemented by both projects is anticipated to be sufficient to minimise impact on marine historic environment receptors and it is expected that there will be <b>no likely significant cumulative effect</b>.</p>	
Shipping and Navigation	Yes	Yes	Potential overlap during the construction phase.	<p>The construction operations will impose and patrol a 500 m radius Restricted Zone moving at between 0.5 m and 5 km per day. Nearby vessels are expected to be either aware prior to, and/or contacted directly by the patrol to observe the restriction zone. Any hazardous marine activity associated with Sizewell C construction, some 5 km north, will also likely establish restricted zones of a similar size, and will also inform vessels using the area appropriately. These small spatial footprints are unlikely to combine for any protracted period or with significant disruption to vessels using the area and as such represent very limited cumulative effect over and above that already identified and addressed by the development embedded mitigation measures. <b>Not likely to have significant cumulative effect.</b></p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Commercial Fisheries	Yes	Yes	Potential overlap during construction, operation and maintenance, and decommissioning phases.	<p>Sizewell C Nuclear Power Plant is located in ICES Rectangle 33F1, 5 km north of the Offshore Scheme Boundary.</p> <p>Construction commenced in 2024 with a predicted construction duration of 9 -15 years. During this time works to install sea defences, cooling systems, and a temporary jetty may cause disruption to some fishers' usual activities.</p> <p>An Environmental Impact Assessment and Habitats Regulations Assessment has already been carried out for the Sizewell C Nuclear Power Plant which included the recommendation of mitigation measures.</p> <p>Furthermore, Sizewell C's project footprint occupies a small portion of relatively widespread fishing grounds in ICES 33F1.</p> <p>Combined with the localised and transitory nature of the Proposed Project's cable installation (and the associated exclusion zone), and the mitigation measures that will be implemented, it is expected that there will be <b>no likely significant cumulative effect</b> during the construction phase.</p> <p>Similarly, <b>no likely significant cumulative effect</b> is likely during the operation phase and maintenance phase due to the in-situ cable being relatively discrete, the separation distance between the two projects, and likely short-term nature of any works.</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Decommissioning plans are currently unknown, but the effects are likely to be similar to those during the construction phase.	
Other Sea Users	Yes	Yes	Potential overlap during construction phase.	<p>An Environmental Impact Assessment and Habitats Regulations Assessment has already been carried out for the Sizewell C Nuclear Power Plant which included the recommendation of mitigation measures.</p> <p>Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones.</p> <p>Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project.</p> <p>Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVigational TELeX (NAVTEX), and/or broadcast warnings. <b>Not likely to have significant effect.</b></p>	No



**Table 11.4 Matrix summarising stage 1 and 2 of the Inter-Project CEA - NeuConnect**

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Physical Environment	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases.	<p>The NeuConnect HVDC subsea cable crosses the Offshore Scheme at KP 50.7. External protection on the HVDC cables including pre- and post-lay rock placement. Neuconnect has started construction in 2022. The cable crossing with Neuconnect is included as part of the project design, which has already been assessed in <b>Application Document 6.2.4.1 Part 4 Marine Chapter 1 Physical Environment</b> with no further crossings anticipated in the future.</p> <p>Simultaneous cable construction operations may increase the amount of sediment disturbed and released into the water column, increasing water column turbidity and potentially releasing contaminants into the water column reducing water quality. However, as the Proposed Project is predicted to have only negligible effects, this impact is <b>screened out</b> from further assessment as significant cumulative effects are unlikely to occur.</p> <p>A wider area of seafloor morphology and seafloor morphological features (i.e. bedforms) may be altered during the simultaneous installation activities. However, as the Proposed Project is predicted to have only negligible effects, this impact is <b>screened out</b> from further assessment.</p>	<b>Yes</b>

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				The cable protection measures installed for both projects may collectively impact sediment transport patterns.	
Benthic Ecology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases.	<p>The NeuConnect HVDC subsea cable crosses the Offshore Scheme at KP 50.7 and therefore there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species;</li> <li>• temporary increase in SSC and sediment deposition;</li> <li>• direct loss of benthic habitats and species due to placement of hard substrates on the seabed;</li> <li>• disturbance to benthic habitats and species due to subsea cable thermal emissions; and</li> <li>• effects from electromagnetic field (EMF) emissions.</li> </ul> <p>Based on the rationale outlined for other projects (detailed in Table 11.3), the introduction and spread of INNS and changes in marine water quality from HDD drilling fluids impact pathways are not considered further within the cumulative effects assessment.</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Additionally, <b>Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology</b> concluded that the sensitivity of benthic ecology receptors to underwater noise associated with the Proposed Project is considered to be negligible. Therefore, this impact pathway has not been considered further.	
Fish and Shellfish Ecology	Yes	Yes	Potential overlap between the construction and operation phases	<p>The NeuConnect HVDC subsea cable crosses the Offshore Scheme at KP 50.7 and therefore there is potential for cumulative effects to fish and shellfish via the following pathways:</p> <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species;</li> <li>• temporary increase in SSC and sediment deposition;</li> <li>• underwater sound;</li> <li>• permanent loss of fish and shellfish habitat due to placement of hard substrates on the seabed;</li> <li>• disturbance to fish and shellfish due to subsea cable thermal emissions; and</li> <li>• effects from electromagnetic field (EMF) emissions.</li> </ul>	Yes
Marine Mammals	Yes	Yes	Potential overlap during the construction, operation	The NeuConnect HVDC subsea cable crosses the Offshore Scheme at KP 50.7 and therefore there is	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			and decommissioning phases.	<p>potential for cumulative effects to marine mammals via the following pathways:</p> <ul style="list-style-type: none"> <li>• Underwater sound; and</li> <li>• indirect effects from impacts to prey species.</li> </ul> <p>As both projects will be adopting standard JNCC guidance, and the spatial overlap is likely to endure for only a very short amount of time, cumulative effects are not likely, and the underwater noise pathway is screened out. It is not considered likely that there could be any cumulative effect in relation to prey items as the effect of the Proposed Project is predicted to be negligible.</p> <p>Based on the rationale outlined for other projects (Table 11.3), airborne sound and visual disturbance, vessel collision risk, and reduction in marine water quality have been screened out of further assessment.</p>	
Marine Ornithology	Yes	Yes	Potential overlap between the construction and operation phases	Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver (considered to be the most sensitive), as well as increasing temporary	Yes



Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>disturbance to foraging habitats and further decreasing water quality.</p> <p>Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. As such, direct cumulative disturbance to non-breeding waterbirds is not likely. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reductions in water quality from increases in suspended sediment are likely to be highly localised over a small spatial overlap where Neuconnect crosses the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea.</p> <p>The Neuconnect EIA found the presence of red-throated diver and other foraging seabirds to be low in the vicinity of its project and in isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, there remains a <b>potential for significant cumulative effects</b> related to the disturbance of the red-throated diver.</p>	
Marine Archaeology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases, due to cables crossing.	NeuConnect has undergone EIA with suitable mitigation measures recommended. It is essential to ensure that at the intersection of both projects that the depth of the trench(es) and any use of external cable protection are fully assessed as part of the EIA for the potential for direct and indirect impact to marine	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>archaeological receptors. This assessment for the Proposed Project has been included in the ES chapter for marine archaeology (<b>Application Document 6.2.4.6 Part 4 Marine Chapter 7 Marine Archaeology</b>) based on the design information to date.</p> <p>Relevant shared receptors include:</p> <ul style="list-style-type: none"> <li>• Known and potential palaeogeographic features and prehistoric material;</li> <li>• known and potential maritime and aviation sites and associated finds;</li> <li>• coastal and intertidal heritage assets relating to coastal/marine activity (known and potential palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features); and</li> <li>• the historic seascape character of the region.</li> </ul> <p>Relevant shared impact pathways include:</p> <ul style="list-style-type: none"> <li>• Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors including their setting;</li> </ul>	

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes; and</li> <li>project works that temporarily or permanently change the character of the historic seascape of the region.</li> </ul> <p>Recommended mitigation implemented by both projects is anticipated to be sufficient to minimise impact on marine historic environment receptors and it is expected that there will be <b>no likely significant cumulative effect</b>.</p>	
Shipping and Navigation	Yes	Yes	Potential overlap during construction and operation phases.	<p>The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with NeuConnect. Crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed cables.</p> <p>It is unlikely for both projects to be installing at the same place at the same time. However, the expected location of the crossing between the Offshore Scheme and NeuConnect is within the Sunk TSS which is a region of very intense vessel traffic.</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>Potential pathways are:</p> <ul style="list-style-type: none"> <li>• Passing vessels of all categories: Collisions leading to loss of life and major damage to equipment;</li> <li>• disruption to multiple vessels using established routes and areas due activities of the Offshore Scheme;</li> <li>• anchoring vessels: Vessel drags anchor across exposed cable;</li> <li>• fishing vessels: Gear snagging;</li> <li>• reduction in Under-Keel Clearance; and</li> <li>• vessels navigating with magnetic compass: EMF Interference with marine navigational equipment.</li> </ul>	
Commercial Fisheries	Yes	Yes	Potential overlap during construction, operation and maintenance, and decommissioning phases.	<p>NeuConnect Interconnector will cross over the Offshore Scheme Boundary in ICES Rectangle 33F2; with offshore cabling due to commence in 2024.</p> <p>NeuConnect has undergone EIA with suitable mitigation measures recommended.</p> <p>Both NeuConnect and the Proposed Project will be localised and transitory in nature (including their associated exclusion zones). Combined with the likely timing of installation for both projects, it is unlikely for both projects to be in the same place at the same time.</p> <p>Furthermore, it is expected that communication between developers regarding cable crossing</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>agreements/design will include discussion of timings, should there be potential for installation activities overlap temporally.</p> <p>Thus, it is expected that there will be <b>no likely significant cumulative effects</b> during the construction phase.</p> <p>Furthermore, cable protection at the crossing will occupy an extremely small portion of relatively widespread fishing grounds as identified during fisher consultation. Any maintenance works will also be extremely localised and short-term in nature. Thus, there are <b>no likely significant effects</b> during the operation and maintenance phase.</p> <p>Decommissioning plans are currently unknown, but the effects are likely to be similar to those during the construction phase.</p>	
Other Sea Users	Yes	Yes	Potential overlap during construction and operation phases.	<p>The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with Neuconnect. Crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with Neuconnect is included as part of the</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in <b>Application Document 6.2.4.9 Part 4 Marine Chapter 9 Other Sea Users</b>.</p> <p>Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones.</p> <p>Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project.</p> <p>Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. <b>Not likely to have significant effect.</b></p>	



**Table 11.5 Matrix summarising stage 1 and 2 of the Inter-Project CEA - GridLink Interconnector**

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
Relevant shared receptors and/or pathways?					
Physical Processes	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	<p>The GridLink Interconnector HVDC subsea cable crosses the Offshore Scheme at KP 101.3.</p> <p>Simultaneous cable construction operations may increase the amount of sediment disturbed and released into the water column, increasing water column turbidity and potentially releasing contaminants into the water column reducing water quality. However, as the Proposed Project is predicted to have only negligible effects, this impact is <b>screened out</b> from further assessment as significant cumulative effects are considered highly unlikely.</p> <p>A wider area of seafloor morphology and seafloor morphological features (i.e. bedforms) may be altered during the simultaneous installation activities. However, as the Proposed Project is predicted to have only negligible effects, this impact is <b>screened out</b> from further assessment as significant cumulative effects are considered highly unlikely.</p> <p>The cable protection measures installed for both projects may collectively impact sediment transport patterns.</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
Relevant shared receptors and/or pathways?					
Benthic Ecology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	<p>The GridLink Interconnector HVDC subsea cable crosses the Offshore Scheme at KP 101.3 and therefore there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species;</li> <li>• temporary increase in SSC and sediment deposition;</li> <li>• direct loss of benthic habitats and species due to placement of hard substrates on the seabed;</li> <li>• disturbance to benthic habitats and species due to subsea cable thermal emissions; and</li> <li>• effects from EMF emissions.</li> </ul> <p>Based on the rationale outlined for other projects (detailed in Table 11.3 and Table 11.4), the introduction and spread of INNS, changes in marine water quality from HDD drilling fluids, and underwater noise impact pathways are not considered further within the cumulative effects assessment.</p>	Yes
Fish and Shellfish Ecology	Yes	Yes	Potential overlap between the construction and operation phases	The GridLink Interconnector HVDC subsea cable crosses the Offshore Scheme at KP 101.3 and therefore there is potential for cumulative effects via the following pathways:	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
				Relevant shared receptors and/or pathways?	
				<ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species;</li> <li>• temporary increase in SSC and sediment deposition;</li> <li>• underwater sound;</li> <li>• permanent loss of fish and shellfish habitat due to placement of hard substrates on the seabed;</li> <li>• disturbance to fish and shellfish due to subsea cable thermal emissions; and</li> <li>• effects from electromagnetic field (EMF) emissions.</li> </ul>	
Marine Mammals	Yes	Yes	Potential overlap between the construction, operation and decommissioning phases	<p>The GridLink Interconnector HVDC subsea cable crosses the Offshore Scheme at KP 101.3 and therefore there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>• Underwater sound;</li> <li>• indirect effects from impacts to prey species; and</li> <li>• airborne sound and visual disturbance.</li> </ul> <p>As both projects will be adopting standard JNCC guidance, and the spatial overlap is likely to endure for only a very short amount of time, cumulative effects are not likely, and the underwater noise pathway is screened out. It is not considered likely that there could be any cumulative effect in relation</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
				<b>Relevant shared receptors and/or pathways?</b>	
				to prey items as the effect of the Proposed Project is predicted to be negligible.	
				Based on the rationale outlined for other projects (Table 11.3), vessel collision risk, and reduction in marine water quality have been screened out of further assessment.	
Marine Ornithology	Yes	Yes	Potential overlap between the construction and operation phases	Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver (considered to be the most sensitive), as well as increasing temporary disturbance to foraging habitats and further decreasing water quality. Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. As such, direct cumulative disturbance to non-breeding waterbirds is not likely. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases in suspended sediment are likely to be highly localised over a small spatial overlap where GridLink Interconnector crosses the Proposed Project in comparison to the total amount of	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
				Relevant shared receptors and/or pathways?	
				<p>foraging habitat for seabirds and waterbirds in the North Sea.</p> <p>In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. As a result, there is potential for <b>significant cumulative effects</b> related to the disturbance of the red-throated diver.</p>	
Marine Archaeology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases, due to cables crossing.	<p>GridLink Interconnector has undergone EIA with suitable mitigation measures recommended. It is essential to ensure that at the intersection of both projects that the depth of the trench(es) and any use of external cable protection are fully assessed as part of the EIA for the potential for direct and indirect impact to marine archaeological receptors. This assessment for the Proposed Project has been included in the ES chapter for marine archaeology (<b>Application Document 6.2.4.6 Part 4 Marine Chapter 7 Marine Archaeology</b>) based on the design information to date.</p> <p>Relevant shared receptors include:</p> <ul style="list-style-type: none"> <li>Known and potential palaeogeographic features and prehistoric material;</li> </ul>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
				<p><b>Relevant shared receptors and/or pathways?</b></p> <ul style="list-style-type: none"> <li>• known and potential maritime and aviation sites and associated finds;</li> <li>• coastal and intertidal heritage assets relating to coastal/marine activity (known and potential palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features); and</li> <li>• the historic seascape character of the region.</li> </ul> <p>Relevant shared impact pathways include:</p> <ul style="list-style-type: none"> <li>• Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors including their setting;</li> <li>• physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes; and</li> <li>• project works that temporarily or permanently change the character of the historic seascape of the region.</li> </ul> <p>Recommended mitigation implemented by both projects is anticipated to be sufficient to minimise impact on marine historic environment receptors and it is expected that there will be <b>no likely significant cumulative effect</b>.</p>	



Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
Relevant shared receptors and/or pathways?					
Shipping and Navigation	Yes	Yes	Potential overlap during construction and operation phases.	<p>The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with GridLink Interconnector. Cable crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed cables.</p> <p>It is unlikely for both projects to be installing at the same place at the same time, however there is also potential for significant likely effects in the operation phase.</p> <p>Potential pathways are:</p> <ul style="list-style-type: none"> <li>• Passing vessels of all categories: Collisions leading to loss of life and major damage to equipment;</li> <li>• disruption to multiple vessels using established routes and areas due activities of the Offshore Scheme;</li> <li>• anchoring vessels: Vessel drags anchor across exposed cable;</li> <li>• fishing vessels: Gear snagging;</li> </ul>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
				Relevant shared receptors and/or pathways?	
				<ul style="list-style-type: none"> <li>• reduction in Under-Keel Clearance; and</li> <li>• vessels navigating with magnetic compass: EMF Interference with marine navigational equipment.</li> </ul>	
Commercial Fisheries	Yes	Yes	Potential overlap during construction, operation and maintenance, and decommissioning phases.	<p>GridLink is due to commence in 2024. The cable route will cross over the Offshore Scheme Boundary in ICES Rectangle 32F1.</p> <p>It is assumed crossing agreements will be in place between the two projects, but coordination will be required to avoid exclusion zones for both projects being implemented at the same time in close proximity, despite both installations being localised and transient in nature.</p> <p>Further information is required regarding the installation timelines and agreements to be able to rule out the potential of cumulative effects on commercial fisheries receptors during the construction phase.</p> <p>Cable protection at the crossing will occupy an extremely small portion of relatively widespread fishing grounds as identified during fisher consultation. Any maintenance works will also be extremely localised and short-term in nature. Thus, there are no likely significant effects during the operation and maintenance phase.</p> <p>Decommissioning plans are currently unknown, but the effects are likely to be similar to those during the construction phase.</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
Relevant shared receptors and/or pathways?					
Other Sea Users	Yes	Yes	Potential overlap during construction and operation phases.	<p>The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with Gridlink. Crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with Gridlink is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in <b>Application Document 6.2.4.9 Part 4 Marine Chapter 9 Other Sea Users</b>.</p> <p>Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones.</p> <p>Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project.</p> <p>Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners,</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
				Relevant shared receptors and/or pathways?	
				Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. <b>Not likely to have significant effect.</b>	

**Table 11.6 Matrix summarising stage 1 and 2 of the Inter-Project CEA - North Falls Offshore Windfarm**

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
				Relevant shared receptors and/or pathways?	
Physical Environment	<b>Yes</b>	<b>Yes</b>	Potential overlap during the construction, operation and decommissioning phases	<p>The North falls Offshore Windfarm will include two HVAC subsea cables that will cross the Offshore Scheme at KP 52.0 and KP 53.0.</p> <p>Simultaneous cable and windfarm construction operations may increase the area/amount of sediment disturbed and then released into the water column, increasing water column turbidity and potentially releasing more contaminants into the water column reducing water quality across a wider area. However, as the Proposed Project is predicted to have only negligible effects, this impact is <b>screened out</b> from further assessment as significant cumulative effects are considered highly unlikely.</p>	<b>Yes</b>

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				The cable protection measures installed for both projects may collectively impact sediment transport patterns.	
Benthic Ecology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	<p>The North falls Offshore Windfarm will include two HVAC subsea cables that will cross the Offshore Scheme at KP 52.0 and KP 53.0. Therefore, there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species;</li> <li>• temporary increase in SSC and sediment deposition;</li> <li>• direct loss of benthic habitats and species due to placement of hard substrates on the seabed;</li> <li>• disturbance to benthic habitats and species due to subsea cable thermal emissions; and</li> <li>• effects from EMF emissions.</li> </ul> <p>Based on the rationale outlined for other projects (detailed in Table 11.3 and Table 11.4), , the introduction and spread of INNS, changes in marine water quality from HDD drilling fluids, and underwater noise impact pathways are not considered further within the cumulative effects assessment.</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Fish and Shellfish Ecology	Yes	Yes	Potential overlap between the construction and operation phases	<p>The North falls Offshore Windfarm will include two HVAC subsea cables that will cross the Offshore Scheme at KP 52.0 and KP 53.0. Therefore, there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species;</li> <li>• temporary increase in SSC and sediment deposition;</li> <li>• underwater sound;</li> <li>• permanent loss of fish and shellfish habitat due to placement of hard substrates on the seabed;</li> <li>• disturbance to fish and shellfish due to subsea cable thermal emissions; and</li> <li>• effects from electromagnetic field (EMF) emissions.</li> </ul>	Yes
Marine Mammals	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	<p>The North falls Offshore Windfarm will include two HVAC subsea cables that will cross the Offshore Scheme at KP 52.0 and KP 53.0. Therefore, there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>• Underwater sound; and,</li> <li>• indirect effects from impacts to prey species.</li> </ul>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>As both projects will be adopting standard JNCC guidance, and the spatial overlap is likely to endure for only a very short amount of time, cumulative effects are not likely, and the underwater noise pathway is screened out. It is not considered likely that there could be any cumulative effect in relation to prey items as the effect of the Proposed Project is predicted to be negligible.</p> <p>Based on the rationale outlined for other projects (Table 11.3), airborne sound and visual disturbance, vessel collision risk, and reduction in marine water quality have been screened out of further assessment.</p>	
Marine Ornithology	Yes	Yes	Potential overlap between the construction and operation phases	<p>Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver (considered to be the most sensitive), as well as increasing temporary disturbance to foraging habitats and further decreasing water quality.</p> <p>Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. As such, direct cumulative disturbance to non-breeding waterbirds is not likely. The cumulative disturbance of seabed</p>	Yes



Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases suspended sediment are likely to be highly localised over a small spatial overlap where North Falls Offshore Windfarm crosses the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea.</p> <p>In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. As a result, there remains a <b>potential for significant cumulative effects</b> related to the disturbance of the red-throated diver.</p>	
Marine Archaeology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases, due to cables crossing.	North Falls Offshore Windfarm will undergo EIA with suitable mitigation measures recommended. It is essential to ensure that at the intersection of both projects that the depth of the trench(es) and any use of external cable protection are fully assessed as part of the EIA for the potential for direct and indirect impact to marine archaeological receptors. This assessment for the Proposed Project has been included in the ES chapter for marine archaeology ( <b>Application Document 6.2.4.6 Part 4 Marine Chapter 7 Marine</b>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
				<p><b>Relevant shared receptors and/or pathways?</b></p> <p><b>Archaeology</b>) based on the design information to date.</p> <p>Relevant shared receptors include:</p> <ul style="list-style-type: none"> <li>• Known and potential palaeogeographic features and prehistoric material;</li> <li>• known and potential maritime and aviation sites and associated finds;</li> <li>• coastal and intertidal heritage assets relating to coastal/marine activity (known and potential palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features); and</li> <li>• the historic seascape character of the region.</li> </ul> <p>Relevant shared impact pathways include:</p> <ul style="list-style-type: none"> <li>• Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors including their setting;</li> <li>• physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes; and</li> </ul>	

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>project works that temporarily or permanently change the character of the historic seascape of the region.</li> </ul> <p>Recommended mitigation implemented by both projects is anticipated to be sufficient to minimise impact on marine historic environment receptors and it is expected that there will be <b>no likely significant cumulative effect</b>.</p>	
Shipping and Navigation	Yes	Yes	Potential overlap during construction and operational phases due to cable crossing.	<p>The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with North Falls Offshore Windfarm. Cable crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed cables.</p> <p>It is unlikely for both projects to be installing at the same place at the same time. However, the expected location of the crossing between the Offshore Scheme and North Falls Offshore Windfarm export cable is within the Sunk TSS which is a region of very intense vessel traffic.</p> <p>Potential pathways are:</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>• Passing vessels of all categories: Collisions leading to loss of life and major damage to equipment;</li> <li>• disruption to multiple vessels using established routes and areas due activities of the Offshore Scheme;</li> <li>• anchoring vessels: Vessel drags anchor across exposed cable;</li> <li>• fishing vessels: Gear snagging;</li> <li>• reduction in Under-Keel Clearance; and</li> <li>• vessels navigating with magnetic compass: EMF Interference with marine navigational equipment.</li> </ul>	
Commercial Fisheries	Yes	Yes	Potential overlap during construction, operation and maintenance, and decommissioning phases.	<p>The export cable for North Falls Offshore Windfarm will cross over the Offshore Scheme Boundary in ICES Rectangle 32F1.</p> <p>Under the current programme construction is due to commence in 2025/2026.</p> <p>It is assumed crossing agreements will be in place between the two projects, but coordination will be required to avoid exclusion zones for both projects being implemented at the same time in close proximity, despite both cable installations being localised and transient in nature.</p> <p>Further information is required regarding the installation timelines and agreements to be able to</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>rule out the potential of cumulative effects on commercial fisheries receptors during the construction phase.</p> <p>Cable protection at the crossing will occupy an extremely small portion of relatively widespread fishing grounds as identified during fisher consultation. Any maintenance works will also be extremely localised and short-term in nature. Thus, there are no likely significant effects during the operation and maintenance phase.</p> <p>Decommissioning plans are currently unknown, but the effects are likely to be similar to those during the construction phase.</p>	
Other Sea Users	Yes	Yes	Potential overlap during construction and operational phases due to cable crossing.	<p>The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor such as that already foreseen with North Falls Offshore Windfarm. Crossings will be undertaken using agreed crossing designs and schedules in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with North Falls OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
				<p><b>Relevant shared receptors and/or pathways?</b></p> <p>does not constitute a cumulative effect as it is already considered in <b>Application Document 6.2.4.9 Part 4 Marine Chapter 9 Other Sea Users.</b></p> <p>Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones.</p> <p>Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project.</p> <p>Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. <b>Not likely to have significant effect.</b></p>	

**Table 11.7 Matrix summarising stage 1 and 2 of the Inter-Project CEA - East Anglia ONE North Offshore Windfarm**

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Physical Environment	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	<p>Simultaneous cable construction operations may increase the area/ amount of sediment disturbed and then released into the water column, increasing water column turbidity and potentially releasing more contaminants into the water column reducing water quality across a wider area. However, as the Proposed Project is predicted to have only negligible effects, this impact is <b>screened out</b> from further assessment as significant cumulative effects are unlikely to occur.</p> <p>The cable protection measures installed for both projects may collectively impact sediment transport patterns.</p> <p>Both the Proposed Project and the East Anglia ONE North Offshore Windfarm are in close proximity to the Coraline Crag Ridges. Simultaneous construction operations may impact the morphology and sediment composition of the Coraline Crag Ridges.</p>	Yes
Benthic Ecology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	<p>The Order Limits for East Anglia ONE North Offshore Windfarm is approximately 0.36 km northeast of the Offshore Scheme.</p> <p>This distance is within the ZOI for the temporary increase in SSC and sediment deposition, thus there is potential for cumulative effects via this following impact pathway.</p> <p>Based on the rationale outlined for other projects (detailed in Table 11.3),, the introduction and spread of INNS, changes in marine water quality from HDD drilling fluids impact pathways</p>	Yes



Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				are not considered further within the cumulative effects assessment.	
Fish and Shellfish Ecology	Yes	Yes	Potential overlap between the construction and operation phases	<p>The Order Limits for East Anglia ONE North Offshore Windfarm is approximately 0.36 km northeast of the Offshore Scheme.</p> <p>This distance is within the ZOI for <b>temporary increase in SSC and sediment deposition</b>, thus there is potential for cumulative effects via this impact pathway.</p>	Yes
Marine Mammals	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	<p>The Order Limits for East Anglia ONE North Offshore Windfarm is approximately 0.36 km northeast of the Offshore Scheme. This distance is within the ZOI for the following pathways:</p> <ul style="list-style-type: none"> <li>• Underwater sound; and,</li> <li>• indirect effects to prey species.</li> </ul> <p>As both projects will be adopting standard JNCC guidance, and the spatial overlap is likely to endure for only a very short amount of time, cumulative effects are not likely, and the underwater noise pathway is screened out. It is not considered likely that there could be any cumulative effect in relation to prey items as the effect of the Proposed Project is predicted to be negligible.</p> <p>Based on the rationale outlined for other projects (Table 11.3), airborne sound and visual disturbance, vessel collision risk, and reduction in marine water quality have been screened out of further assessment.</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Marine Ornithology	Yes	Yes	Potential overlap between construction and operation phases	<p>Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver (considered to be the most sensitive), as well as increasing temporary disturbance to foraging habitats and further decreasing water quality.</p> <p>Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. As such, direct cumulative disturbance to non-breeding waterbirds is not likely. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases suspended sediment are likely to be highly localised over a small spatial overlap where East Anglia ONE North Offshore Windfarm is in close proximity to the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea.</p> <p>In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. As a result, there remains a <b>potential for significant cumulative effects</b> related to the disturbance of the red-throated diver.</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Marine Archaeology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases.	<p>East Anglia ONE North Offshore Windfarm has undergone EIA with suitable mitigation measures recommended.</p> <p>East Anglia ONE North Offshore Windfarm and the Proposed Project will not physically overlap, however, with regards to known and potential maritime and aviation features located within the Proposed Project area, it would be beneficial to understand the physical environment within the operating offshore windfarm area that could cause indirect impacts to these receptors. The impact assessment relating to the physical environment within the East Anglia ONE North Offshore Windfarm during the construction phase conclude that the significance of effect is minor adverse (ScottishPower Renewables, 2019a) The assessment of indirect impacts caused by changes to the physical environment for the Proposed Project is presented in the ES chapter for marine archaeology (<b>Application Document 6.2.4.6 Part 4 Marine Chapter 7 Marine Archaeology</b>) and concludes that the significance of effect is minor adverse.</p> <p>Relevant shared receptors include:</p> <ul style="list-style-type: none"> <li>• Known and potential palaeogeographic features and prehistoric material;</li> <li>• known and potential maritime and aviation sites and associated finds;</li> <li>• coastal and intertidal heritage assets relating to coastal/marine activity (known and potential palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features); and</li> </ul>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>the historic seascape character of the region.</li> </ul> <p>Relevant shared impact pathways include:</p> <ul style="list-style-type: none"> <li>Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors including their setting;</li> <li>physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes; and</li> <li>project works that temporarily or permanently change the character of the historic seascape of the region.</li> </ul> <p>Based on the results of the physical environment assessment for East Anglia ONE North and the recommended mitigation implemented by both projects, which are anticipated to be sufficient to minimise impact on marine historic environment receptors, therefore it is expected that there will be <b>no likely significant cumulative effect</b>.</p>	
Shipping and Navigation	Yes	Yes	Potential overlap during construction and operational phases.	The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with East Anglia ONE Offshore Windfarm. Cable crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed cables.	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>The export cable for East Anglia ONE North could make landfall in close proximity to the Offshore Scheme.</p> <p>It is unlikely for both projects to be installing at the same time, however there is also potential for significant likely effects in the operation phase.</p> <p>Potential pathways are:</p> <ul style="list-style-type: none"> <li>• Passing vessels of all categories: Collisions leading to loss of life and major damage to equipment;</li> <li>• disruption to multiple vessels using established routes and areas due activities of the Offshore Scheme;</li> <li>• anchoring vessels: Vessel drags anchor across exposed cable;</li> <li>• fishing vessels: Gear snagging;</li> <li>• reduction in Under-Keel Clearance; and</li> <li>• vessels navigating with magnetic compass: EMF Interference with marine navigational equipment.</li> </ul>	
Commercial Fisheries	Yes	Yes	Potential overlap during construction, operation and maintenance, and	<p>The export cable for East Anglia One could make landfall as close as 0.36 km from the Offshore Scheme Boundary</p> <p>Construction is expected to commence in 2025 and aims to be operational in 2027/early 2028 based on engagement with developers.</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			decommissioning phases.	<p>Coordination will be required to avoid exclusion zones for both projects being implemented at the same time in close proximity, despite both cable installations being localised and transient in nature.</p> <p>Further information is required regarding the installation timelines and agreements to be able to rule out the potential of cumulative effects on commercial fisheries receptors during the construction phase.</p> <p>Any cable protection required will occupy an extremely small portion of relatively widespread fishing grounds as identified during fisher consultation. Otherwise, the close proximity of the two buried cables mean it is unlikely for there to be a large magnitude of any effects. Any maintenance works will also be extremely localised and short-term in nature. Thus, there are no likely significant effects during the operation and maintenance phase.</p> <p>Decommissioning plans are currently unknown, but the effects are likely to be similar to those during the construction phase.</p>	
Other Sea Users	Yes	Yes	Potential overlap during construction and operational phases.	<p>Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones.</p> <p>Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project.</p> <p>Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. <b>Not likely to have significant effect.</b></p>	No





**Table 11.8 Matrix summarising stage 1 and 2 of the Inter-Project CEA - East Anglia TWO Offshore Windfarm**

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Physical Environment	Yes	Yes	Potential overlap during construction and operational phases.	<p>Simultaneous cable construction operations may increase the area/amount of sediment disturbed and then released into the water column, increasing water column turbidity and potentially releasing more contaminants into the water column reducing water quality across a wider area. However, as the Proposed Project is predicted to have only negligible effects, this impact is <b>screened out</b> from further assessment as significant cumulative effects are unlikely to occur.</p> <p>The cable protection measures installed for both projects may collectively impact sediment transport patterns.</p> <p>Both the Proposed Project and the East Anglia ONE North Offshore Windfarm are in close proximity to the Coraline Crag Ridges. Simultaneous construction operations may impact the morphology and sediment composition of the Coraline Crag Ridges.</p>	Yes
Benthic Ecology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	<p>The Order Limits for East Anglia TWO Offshore Windfarm is approximately 0.36 km northeast of the Offshore Scheme. This distance is within the ZOI for the temporary increase in SSC and sediment deposition, thus there is potential for cumulative effects via this following impact pathway.</p> <p>Based on the rationale outlined for other projects (detailed in Table 11.3), the introduction and spread of INNS and changes in marine water quality from HDD drilling fluids, impact pathways are not considered further within the cumulative effects assessment.</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Fish and Shellfish Ecology	Yes	Yes	Potential overlap between the construction and operation phases	The Order Limits for East Anglia TWO Offshore Windfarm is approximately 0.36 km northeast of the Offshore Scheme. This distance is within the ZOI for the <b>temporary increase in SSC and sediment deposition</b> , thus there is potential for cumulative effects via this impact pathway.	Yes
Marine Mammals	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	<p>The Order Limits for East Anglia TWO Offshore Windfarm is approximately 0.36 km northeast of the Offshore Scheme. This distance is within the ZOI for the following pathways:</p> <ul style="list-style-type: none"> <li>• Underwater sound; and,</li> <li>• indirect effects to prey species.</li> </ul> <p>As both projects will be adopting standard JNCC guidance, and the spatial overlap is likely to endure for only a very short amount of time, cumulative effects are not likely, and the underwater noise pathway is screened out. It is not considered likely that there could be any cumulative effect in relation to prey items as the effect of the Proposed Project is predicted to be negligible.</p> <p>Based on the rationale outlined for other projects (Table 11.3), airborne sound and visual disturbance, vessel collision risk, and reduction in marine water quality have been screened out of further assessment.</p>	No
Marine Ornithology	Yes	Yes	Potential overlap between the construction and operation phases	Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver (considered to be the most sensitive), as well as	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>increasing temporary disturbance to foraging habitats and further decreasing water quality.</p> <p>Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. As such, direct cumulative disturbance to non-breeding waterbirds is not likely. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases suspended sediment are likely to be highly localised over a small spatial overlap where East Anglia TWO OWF is in close proximity to the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea.</p> <p>In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. As a result, there remains a <b>potential for significant cumulative effects</b> related to the disturbance of the red-throated diver.</p>	
Marine Archaeology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases.	<p>East Anglia TWO Offshore Windfarm has undergone EIA with suitable mitigation measures recommended.</p> <p>East Anglia TWO Offshore Windfarm and the Proposed Project will not physically overlap, however, with regards to known and potential maritime and aviation features located within the Proposed Project area, it would be beneficial to</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>understand the physical environment within the operating offshore windfarm area that could cause indirect impacts to these receptors. The impact assessment relating to the physical environment within the East Anglia TWO Offshore Windfarm during the construction phase conclude that the significance of effect is minor adverse (ScottishPower Renewables, 2019b). The assessment of indirect impacts caused by changes to the physical environment for the Proposed Project is presented in the ES chapter for marine archaeology (<b>Application Document 6.2.4.6 Part 4 Marine Chapter 7 Marine Archaeology</b>) and concludes that the significance of effect is minor adverse.</p> <p>Relevant shared receptors include:</p> <ul style="list-style-type: none"> <li>• Known and potential palaeogeographic features and prehistoric material;</li> <li>• known and potential palaeogeographic features and prehistoric material;</li> <li>• known and potential maritime and aviation sites and associated finds;</li> <li>• coastal and intertidal heritage assets relating to coastal/marine activity (known and potential palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features); and</li> <li>• the historic seascape character of the region.</li> </ul> <p>Relevant shared impact pathways include:</p>	

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors including their setting;</li> <li>physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes; and</li> <li>project works that temporarily or permanently change the character of the historic seascape of the region.</li> </ul> <p>Based on the results of the physical environment assessment for East Anglia TWO and the recommended mitigation implemented by both projects, which are anticipated to be sufficient to minimise impact on marine historic environment receptors, therefore it is expected that there will be <b>no likely significant cumulative effect</b>.</p>	
Shipping and Navigation	Yes	Yes	Potential overlap during construction and operational phases.	<p>The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with East Anglia TWO Offshore Windfarm. Cable crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed cables.</p> <p>The export cable for East Anglia TWO could make landfall in close proximity to the Offshore Scheme.</p>	

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>It is unlikely for both projects to be installing at the same time, however there is also potential for significant likely effects in the operation phase.</p> <p>Potential pathways are:</p> <ul style="list-style-type: none"> <li>• Passing vessels of all categories: Collisions leading to loss of life and major damage to equipment;</li> <li>• disruption to multiple vessels using established routes and areas due activities of the Offshore Scheme;</li> <li>• anchoring vessels: Vessel drags anchor across exposed cable;</li> <li>• fishing vessels: Gear snagging;</li> <li>• reduction in Under-Keel Clearance; and</li> <li>• vessels navigating with magnetic compass: EMF Interference with marine navigational equipment.</li> </ul>	
Commercial Fisheries	<b>Yes</b>	<b>Yes</b>	Potential overlap during construction, operation and maintenance, and decommissioning phases.	<p>The export cable for East Anglia Two could make landfall as close as 0.36 km from the Offshore Scheme Boundary</p> <p>Construction is expected to commence in 2025 and aims to be operational in 2027/early 2028 based on engagement with developers.</p> <p>Coordination will be required to avoid exclusion zones for both projects being implemented at the same time in close proximity, despite both cable installations being localised and transient in nature.</p>	<b>Yes</b>

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>Further information is required regarding the installation timelines and agreements to be able to rule out the potential of cumulative effects on commercial fisheries receptors during the construction phase.</p> <p>Any cable protection required will occupy an extremely small portion of relatively widespread fishing grounds as identified during fisher consultation. Otherwise, the close proximity of the two buried cables mean it is unlikely for there to be a large magnitude of any effects. Any maintenance works will also be extremely localised and short-term in nature. Thus, there are no likely significant effects during the operation and maintenance phase.</p> <p>Decommissioning plans are currently unknown, but the effects are likely to be similar to those during the construction phase.</p>	
Other Sea Users	Yes	Yes	Potential overlap during construction and operational phases.	<p>Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones.</p> <p>Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project.</p> <p>Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. <b>Not likely to have significant effect.</b></p>	No



**Table 11.9 Matrix summarising stage 1 and 2 of the Inter-Project CEA - East Anglia THREE Offshore Windfarm**

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Physical Environment	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	<p>Simultaneous cable construction operations may increase the area/amount of sediment disturbed and then released into the water column, increasing water column turbidity and potentially releasing more contaminants into the water column reducing water quality across a wider area. However, as the Proposed Project is predicted to have only negligible effects, this impact is <b>screened out</b> from further assessment as significant cumulative effects are unlikely to occur.</p> <p>The cable protection measures installed for both projects may collectively impact sediment transport patterns.</p> <p>Both the Proposed Project and the East Anglia THREE Offshore Windfarm are in close proximity to the Coraline Crag Ridges. Simultaneous construction operations may impact the morphology and sediment composition of the Coraline Crag Ridges.</p>	Yes
Benthic Ecology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	<p>The East Anglia THREE Offshore Windfarm will include two HVAC subsea cables that will cross the Offshore Scheme at KP 11.4 and KP 14.5. Therefore, there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species;</li> </ul>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>temporary increase in SSC and sediment deposition;</li> <li>direct loss of benthic habitats and species due to placement of hard substrates on the seabed;</li> <li>disturbance to benthic habitats and species due to subsea cable thermal emissions; and</li> <li>effects from EMF emissions.</li> </ul> <p>Based on the rationale outlined for other projects (detailed in Table 11.3 and Table 11.4),, the introduction and spread of INNS, changes in marine water quality from HDD drilling fluids, and underwater noise impact pathways are not considered further within the cumulative effects assessment.</p>	
Fish and Shellfish Ecology	Yes	Yes	Potential overlap between the construction and operation phases	<p>The East Anglia THREE Offshore Windfarm will include two HVAC subsea cables that will cross the Offshore Scheme at KP 11.4 and KP 14.5. Therefore, there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>Temporary physical disturbance to habitats and species;</li> <li>temporary increase in SSC and sediment deposition;</li> <li>underwater sound;</li> <li>permanent loss of fish and shellfish habitat due to placement of hard substrates on the seabed;</li> </ul>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>disturbance to fish and shellfish due to subsea cable thermal emissions; and</li> <li>effects from electromagnetic field (EMF) emissions.</li> </ul>	
Marine Mammals	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	<p>The East Anglia THREE Offshore Windfarm will include two HVAC subsea cables that will cross the Offshore Scheme at KP 11.4 and KP 14.5. Therefore, there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>Underwater sound; and,</li> <li>indirect effects to prey species.</li> </ul> <p>As both projects will be adopting standard JNCC guidance, and the spatial overlap is likely to endure for only a very short amount of time, cumulative effects are not likely, and the underwater noise pathway is screened out. It is not considered likely that there could be any cumulative effect in relation to prey items as the effect of the Proposed Project is predicted to be negligible.</p> <p>Based on the rationale outlined for other projects (Table 11.3), airborne sound and visual disturbance, vessel collision risk, and reduction in marine water quality have been screened out of further assessment.</p>	No
Marine Ornithology	Yes	Yes	Potential overlap between construction and operation phases	Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>diver, as well as increasing temporary disturbance to foraging habitats and further decreasing water quality.</p> <p>Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. As such, direct cumulative disturbance to non-breeding waterbirds is not likely. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases suspended sediment are likely to be highly localised over a small spatial overlap where East Anglia THREE Offshore Windfarm is in close proximity to the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea.</p> <p>In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. As a result, there remains a <b>potential for significant cumulative effects</b> related to the disturbance of the red-throated diver.</p>	
Marine Archaeology	Yes	Yes	Potential overlap during the construction, operation and decommissioning	<p>East Anglia THREE Offshore Windfarm has undergone EIA with suitable mitigation measures recommended.</p> <p>It is essential to ensure that at the intersection of both projects that the depth of the trench(es) and any use of external cable protection are fully assessed as part of the EIA for the</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			phases, due to cables crossing.	<p>potential for direct and indirect impact to marine archaeological receptors. This assessment for the Proposed Project has been included in the ES chapter for marine archaeology (<b>Application Document 6.2.4.6 Part 4 Marine Chapter 7 Marine Archaeology</b>) based on the design information to date. Furthermore, the impact assessment relating to the physical environment within the East Anglia THREE Offshore Windfarm during the construction phase concludes that the significance of effect is between negligible and minor adverse/beneficial (East Anglia Offshore Wind, 2015).</p> <p>Relevant shared receptors include:</p> <ul style="list-style-type: none"> <li>• Known and potential palaeogeographic features and prehistoric material;</li> <li>• known and potential maritime and aviation sites and associated finds;</li> <li>• coastal and intertidal heritage assets relating to coastal/marine activity (known and potential palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features); and</li> <li>• the historic seascape character of the region.</li> </ul> <p>Relevant shared impact pathways include:</p> <ul style="list-style-type: none"> <li>• Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors including their setting;</li> </ul>	

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes; and</li> <li>project works that temporarily or permanently change the character of the historic seascape of the region.</li> </ul> <p>Recommended mitigation implemented by both projects is anticipated to be sufficient to minimise impact on marine historic environment receptors and it is expected that there will be <b>no likely significant cumulative effect</b>.</p>	
Shipping and Navigation	Yes	Yes	Potential overlap during construction and operational phases.	<p>The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with East Anglia THREE Offshore Windfarm. Cable crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed cables.</p> <p>It is unlikely for both projects to be installing at the same time, however there is also potential for significant likely effects in the operation phase.</p> <p>Potential pathways are:</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>• Passing vessels of all categories: Collisions leading to loss of life and major damage to equipment;</li> <li>• Disruption to multiple vessels using established routes and areas due activities of the Offshore Scheme;</li> <li>• Anchoring vessels: Vessel drags anchor across exposed cable;</li> <li>• Fishing vessels: Gear snagging;</li> <li>• Reduction in Under-Keel Clearance;</li> <li>• Vessels navigating with magnetic compass: EMF Interference with marine navigational equipment.</li> </ul>	
Commercial Fisheries	Yes	Yes	Potential overlap during construction, operation and maintenance, and decommissioning phases.	<p>The export cable for East Anglia Three crosses the Offshore Scheme Boundary in ICES Rectangle 33F1.</p> <p>Construction on the project commenced in July 2022 and is scheduled to be completed by 2026.</p> <p>It is assumed crossing agreements will be in place between the two projects, but coordination will be required to avoid exclusion zones for both projects being implemented at the same time in close proximity, despite both cable installations being localised and transient in nature.</p> <p>Further information is required regarding the installation timelines and agreements to be able to rule out the potential</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>of cumulative effects on commercial fisheries receptors during the construction phase.</p> <p>Cable protection at the crossing will occupy an extremely small portion of relatively widespread fishing grounds as identified during fisher consultation. Any maintenance works will also be extremely localised and short-term in nature. Thus, there are no likely significant effects during the operation and maintenance phase.</p> <p>Decommissioning plans are currently unknown, but the effects are likely to be similar to those during the construction phase.</p>	
Other Sea Users	Yes	Yes	Potential overlap during construction and operational phases.	<p>The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor such as that already foreseen with East Anglia THREE OWF. Crossings will be undertaken using agreed crossing designs and schedules in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with East Anglia THREE OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in <b>Application Document 6.2.4.9 Part 4 Marine Chapter 9 Other Sea Users</b>.</p> <p>Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones.</p>	No



Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project.</p> <p>Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. <b>Not likely to have significant effect.</b></p>	

**Table 11.10 Matrix summarising stage 1 and 2 of the Inter-Project CEA - Nautilus Offshore Interconnector**

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Physical Environment	Yes	Yes	<p>The Nautilus Offshore Interconnector application is expected to be submitted in 2024.</p> <p>No construction programme is available so worst-case temporal overlap is assumed.</p>	<p>Simultaneous cable construction operations may increase the area/amount of sediment disturbed and then released into the water column, increasing water column turbidity and potentially releasing more contaminants into the water column reducing water quality across a wider area. However, as the Proposed Project is predicted to have only negligible effects, this impact is <b>screened out</b> from further assessment as significant cumulative effects are unlikely to occur.</p> <p>The cable protection measures installed at the potentially shared landfall site for both projects may collectively impact sediment transport patterns.</p>	Yes
Benthic Ecology	Yes	Yes	<p>The Nautilus Offshore Interconnector application is expected to be submitted in 2024.</p> <p>No construction programme is available so</p>	<p>The Nautilus Offshore Interconnector potential routing options currently overlap with the Offshore Scheme at the Suffolk Landfall, with the cables unlikely to cross at this location.</p> <p>Potential impact pathways, such as direct loss of benthic habitats and species, disturbance from thermal emissions, and effects of EMF emissions were concluded to be localised to the Proposed Project cables</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			worst-case temporal overlap is assumed.	<p>(Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology). Therefore, these impacts have been screened out of further assessment. However, there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species; and</li> <li>• temporary increase in SSC and sediment deposition.</li> </ul> <p>Based on the rationale outlined for other projects (detailed in Table 11.3 and Table 11.4), the introduction and spread of INNS, changes in marine water quality from HDD drilling fluids, and underwater noise impact pathways are not considered further within the cumulative effects assessment.</p>	
Fish and Shellfish Ecology	Yes	Yes	Potential overlap between the construction and operation phases	<p>The Nautilus Offshore Interconnector potential routing options currently overlap with the Offshore Scheme at the Suffolk Landfall, with the cables unlikely to cross at this location.</p> <p>Potential impact pathways, such as direct loss of benthic habitats and species, disturbance from thermal emissions, and effects of EMF emissions were concluded to be localised to the Proposed Project cables (i.e. within 25 m of the cable route)</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>However, there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>• Temporary increase in SSC and sediment deposition.</li> </ul>	
Marine Mammals	Yes	Yes	<p>The Nautilus Offshore Interconnector application is expected to be submitted in 2024.</p> <p>No construction programme is available so worst-case temporal overlap is assumed.</p>	<p>The Nautilus Offshore Interconnector potential routing options currently overlap with the Offshore Scheme at the Suffolk Landfall, with the cables unlikely to cross at this location. However, there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>• Underwater sound; and</li> <li>• indirect effects from impacts to prey species.</li> </ul> <p>As both projects will be adopting standard JNCC guidance, and the spatial overlap is likely to endure for only a very short amount of time, cumulative effects are not likely, and the underwater noise pathway is screened out. It is not considered likely that there could be any cumulative effect in relation to prey items as the effect of the Proposed Project is predicted to be negligible.</p> <p>Based on the rationale outlined for other projects (Table 11.3), airborne sound and visual disturbance, vessel collision risk, and</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				reduction in marine water quality have been screened out of further assessment.	
Marine Ornithology	Yes	Yes	Potential overlap between the construction phases	<p>Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver (considered to be the most sensitive), as well as increasing temporary disturbance to foraging habitats and further decreasing water quality.</p> <p>Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. As such, direct cumulative disturbance to non-breeding waterbirds is not likely. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases suspended sediment are likely to be highly localised over a small spatial overlap where the Nautilus Offshore Interconnector is in close proximity to the Proposed Project in comparison to the total</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>amount of foraging habitat for seabirds and waterbirds in the North Sea.</p> <p>In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. As a result, there remains a <b>potential for significant cumulative effects</b> related to the disturbance of the red-throated diver.</p>	
Marine Archaeology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases, if cable crossing occurs.	<p>Nautilus Offshore Interconnector will undergo EIA with suitable mitigation measures recommended. Although unconfirmed at this time, if marine cables from both projects do cross it is essential to ensure that at the intersection the depth of the trench(es) and any use of external cable protection are fully assessed as part of the EIA for the potential for direct and indirect impact to marine archaeological receptors. This assessment for the Proposed Project has been included in the ES chapter for marine archaeology (<b>Application Document 6.2.4.6 Part 4 Marine Chapter 7</b></p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p><b>Marine Archaeology</b>) based on the design information to date.</p> <p>Relevant shared receptors include:</p> <ul style="list-style-type: none"> <li>• Known and potential palaeogeographic features and prehistoric material;</li> <li>• known and potential maritime and aviation sites and associated finds;</li> <li>• coastal and intertidal heritage assets relating to coastal/marine activity (known and potential palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features); and</li> <li>• the historic seascape character of the region.</li> </ul> <p>Relevant shared impact pathways include:</p> <ul style="list-style-type: none"> <li>• Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors including their setting;</li> <li>• physical disturbance activities causing indirect changes to</li> </ul>	

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>hydrodynamic and sedimentary regimes; and</p> <ul style="list-style-type: none"> <li>project works that temporarily or permanently change the character of the historic seascape of the region.</li> </ul> <p>Recommended mitigation implemented by both projects is anticipated to be sufficient to minimise impact on marine historic environment receptors and it is expected that there will be <b>no likely significant cumulative effect</b>.</p>	
Shipping and Navigation	Yes	Yes	Potential overlap during construction and operational phases.	<p>The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with Nautilus Offshore Interconnector. Cable crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed cables.</p> <p>It is unlikely for both projects to be installing at the same time, however there is also</p>	Yes



Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>potential for significant likely effects in the operation phase.</p> <p>Potential pathways are:</p> <ul style="list-style-type: none"> <li>• Passing vessels of all categories: Collisions leading to loss of life and major damage to equipment;</li> <li>• disruption to multiple vessels using established routes and areas due activities of the Offshore Scheme;</li> <li>• anchoring vessels: Vessel drags anchor across exposed cable;</li> <li>• fishing vessels: Gear snagging;</li> <li>• reduction in Under-Keel Clearance; and</li> <li>• vessels navigating with magnetic compass: EMF Interference with marine navigational equipment.</li> </ul>	
Commercial Fisheries	Yes	Yes	Potential overlap during construction, operation and	The current design for Nautilus Offshore Interconnector includes a Sussex landfall option partially overlapping the Proposed	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			maintenance, and decommissioning phases.	<p>Project's landfall. However, marine cables are unlikely to cross at this location.</p> <p>With DCO submission not expected until 2028, the timing of subsequent installation activities are not likely to overlap with the Proposed Project.</p> <p>In the event that Nautilus' design moves to Kent, it's cable will cross that of the Proposed Project. However, it is likely that the Proposed Project will have already completed cable installation by this time, making the occurrence of combined exclusion zones unlikely; and any required cable protection is expected to be extremely localised relative to the availability of fishing grounds.</p> <p>Furthermore, both projects are expected to be informed by regular feedback from fishers through consultation regarding any potential effects to fishing; and both projects have undergone EIA with suitable mitigation measures recommended.</p> <p>Thus, it is expected that there will be <b>no likely significant cumulative effects</b> during the construction phase.</p> <p>Furthermore, cable protection at the crossing will occupy an extremely small portion of relatively widespread fishing grounds as identified during fisher</p>	

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				consultation. Any maintenance works will also be extremely localised and short-term in nature. Thus, there are <b>no likely significant effects</b> during the operation and maintenance phase.  Decommissioning plans are currently unknown, but the effects are likely to be similar to those during the construction phase.	
Other Sea Users	Yes	Yes	Potential overlap during construction and operational phases.	The Proposed Project will enter into crossing agreements and/or proximity agreements as required with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor such as that already foreseen with Nautilus Offshore Interconnector. Crossings will be undertaken using agreed crossing designs and schedules in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses, protective on the HVDC cables and/or pre- and post-lay rock placement.  Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones.	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project.</p> <p>Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. <b>Not likely to have significant effect.</b></p>	

**Table 11.11 Matrix summarising stage 1 and 2 of the Inter-Project CEA - Five Estuaries Offshore Windfarm**

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Physical Environment	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases, due to cables crossing.	<p>The Five Estuaries Offshore Windfarm will include two HVAC subsea cables that will cross the Offshore Scheme at KP 50.2 and KP 52.7.</p> <p>Simultaneous cable construction operations may increase the area/amount of sediment disturbed and then released into the water column, increasing water column turbidity and potentially releasing more contaminants into the water column reducing water quality across a wider area. However, as the Proposed Project is predicted to have only negligible effects, this impact is <b>screened out</b> from further assessment as significant cumulative effects are unlikely to occur.</p> <p>The cable protection measures installed at the potentially shared landfall site for both projects may collectively impact sediment transport patterns.</p>	Yes
Benthic Ecology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases, due to cables crossing.	<p>The Five Estuaries Offshore Windfarm will include two HVAC subsea cables that will cross the Offshore Scheme at KP 50.2 and KP 52.7. Therefore, there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species;</li> </ul>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>• temporary increase in SSC and sediment deposition;</li> <li>• direct loss of benthic habitats and species due to placement of hard substrates on the seabed;</li> <li>• disturbance to benthic habitats and species due to subsea cable thermal emissions; and</li> <li>• effects from EMF emissions.</li> </ul> <p>Based on the rationale outlined for other projects (detailed in Table 11.3 and Table 11.4), the introduction and spread of INNS, changes in marine water quality from HDD drilling fluids, and underwater noise impact pathways are not considered further within the cumulative effects assessment.</p>	
Fish and Shellfish Ecology	Yes	Yes	Potential overlap between the construction and operation phases	<p>The Five Estuaries Offshore Windfarm will include two HVAC subsea cables that will cross the Offshore Scheme at KP 50.2 and KP 52.7. Therefore, there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species;</li> <li>• temporary increase in SSC and sediment deposition;</li> <li>• underwater sound;</li> </ul>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>• permanent loss of fish and shellfish habitat due to placement of hard substrates on the seabed;</li> <li>• disturbance to fish and shellfish due to subsea cable thermal emissions; and</li> <li>• effects from electromagnetic field (EMF) emissions.</li> </ul>	
Marine Mammals	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	<p>The Five Estuaries Offshore Windfarm will include two HVAC subsea cables that will cross the Offshore Scheme at KP 50.2 and KP 52.7. Therefore, there is potential for cumulative effects via the following pathways:</p> <ul style="list-style-type: none"> <li>• Underwater sound; and</li> <li>• indirect effects from impacts to prey species.</li> </ul> <p>As both projects will be adopting standard JNCC guidance, and the spatial overlap is likely to endure for only a very short amount of time, cumulative effects are not likely, and the underwater noise pathway is screened out. It is not considered likely that there could be any cumulative effect in relation to prey items as the effect of the Proposed Project is predicted to be negligible.</p> <p>Based on the rationale outlined for other projects (Table 11.3), airborne sound and visual disturbance,</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				vessel collision risk, and reduction in marine water quality have been screened out of further assessment.	
Marine Ornithology	Yes	Yes	Potential overlap between the construction and operation phases	<p>Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver (considered to be the most sensitive), as well as increasing temporary disturbance to foraging habitats and further decreasing water quality.</p> <p>Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. As such, direct cumulative disturbance to non-breeding waterbirds is not likely. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases suspended sediment are likely to be highly localised over a small spatial overlap where Five Estuaries Offshore Windfarm crosses the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea.</p> <p>In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for</p>	Yes



Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. As a result, there remains a <b>potential for significant cumulative effects</b> related to the disturbance of the red-throated diver.	
Marine Archaeology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases, due to cables crossing.	<p>Five Estuaries Offshore Windfarm has undergone EIA with suitable mitigation measures recommended. It is essential to ensure that at the intersection of both projects that the depth of the trench(es) and any use of external cable protection are fully assessed as part of the EIA for the potential for direct and indirect impact to marine archaeological receptors. This assessment for the Proposed Project has been included in the ES chapter for marine archaeology (<b>Application Document 6.2.4.6 Part 4 Marine Chapter 7 Marine Archaeology</b>) based on the design information to date.</p> <p>Relevant shared receptors include:</p> <ul style="list-style-type: none"> <li>• Known and potential palaeogeographic features and prehistoric material;</li> <li>• known and potential maritime and aviation sites and associated finds;</li> <li>• coastal and intertidal heritage assets relating to coastal/marine activity (known</li> </ul>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>and potential palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features); and</p> <ul style="list-style-type: none"> <li>the historic seascape character of the region.</li> </ul> <p>Relevant shared impact pathways include:</p> <ul style="list-style-type: none"> <li>Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors including their setting;</li> <li>physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes; and</li> <li>project works that temporarily or permanently change the character of the historic seascape of the region.</li> </ul> <p>Recommended mitigation implemented by both projects is anticipated to be sufficient to minimise impact on marine historic environment receptors and it is expected that there will be <b>no likely significant cumulative effect</b>.</p>	
Shipping and Navigation	Yes	Yes	Potential overlap during construction and operational phases.	The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
				<p><b>Relevant shared receptors and/or pathways?</b></p> <p>that already foreseen with Five Estuaries. Cable crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed cables.</p> <p>It is unlikely for both projects to be installing at the same place at the same time. However, the expected location of the export cable crossing between the Offshore Scheme and Five Estuaries is within the Sunk TSS which is a region of very intense vessel traffic.</p> <p>Potential pathways are:</p> <ul style="list-style-type: none"> <li>• Passing vessels of all categories: Collisions leading to loss of life and major damage to equipment;</li> <li>• disruption to multiple vessels using established routes and areas due activities of the Offshore Scheme;</li> <li>• anchoring vessels: Vessel drags anchor across exposed cable;</li> <li>• fishing vessels: Gear snagging;</li> <li>• reduction in Under-Keel Clearance; and</li> </ul>	

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>vessels navigating with magnetic compass: EMF Interference with marine navigational equipment.</li> </ul>	
Commercial Fisheries	Yes	Yes	Potential overlap during construction, operation and maintenance, and decommissioning phases.	<p>The Five Estuaries Offshore Boundary crosses over the Offshore Scheme Boundary in ICES Rectangle 32F1.</p> <p>Construction is due to commence in 2027 with full operation in 2030 under the current schedule</p> <p>It is assumed crossing agreements will be in place between the two projects, but coordination will be required to avoid exclusion zones for both projects being implemented at the same time in close proximity, despite both cable installations being localised and transient in nature.</p> <p>Further information is required regarding the installation timelines and agreements to be able to rule out the potential of cumulative effects on commercial fisheries receptors during the construction phase.</p> <p>Cable protection at the crossing will occupy an extremely small portion of relatively widespread fishing grounds as identified during fisher consultation. Any maintenance works will also be extremely localised and short-term in nature. Thus, there are no likely significant effects during the operation and maintenance phase.</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Decommissioning plans are currently unknown, but the effects are likely to be similar to those during the construction phase.	
Other Sea Users	Yes	Yes	Potential overlap during construction and operational phases.	<p>The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor such as that already foreseen with Five Estuaries OWF. Crossings will be undertaken using agreed crossing designs and schedules in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with Five Estuaries OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in <b>Application Document 6.2.4.9 Part 4 Marine Chapter 9 Other Sea Users</b>.</p> <p>Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones.</p> <p>Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
				Relevant shared receptors and/or pathways?	
				users will be able to use other areas in close proximity to the Proposed Project. Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. <b>Not likely to have significant effect.</b>	

**Table 11.12 Matrix summarising stage 1 and 2 of the Inter-Project CEA - Lionlink Offshore Interconnector**

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
The Lionlink Offshore Interconnector is reported as being 0 km from the Offshore Scheme. However, the HVDC subsea cable is unlikely to cross the Proposed Project cable due to the direction that the cable is coming from. It is also unlikely for both projects to be installing at the same time.					
Physical Environment	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases, due to cables crossing.	Simultaneous cable construction operations may increase the area/amount of sediment disturbed and then released into the water column, increasing water column turbidity and potentially releasing more contaminants into the water column reducing water quality across a wider area. However, as the Proposed Project is predicted to have only negligible effects, this impact is <b>screened out</b> from further assessment as significant cumulative effects are unlikely to occur.	No
Benthic Ecology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases, due to cables crossing.	Potential impact pathways, such as direct loss of benthic habitats and species, disturbance from thermal emissions, and effects of EMF emissions were concluded to be localised to the Proposed Project cables ( <b>Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology</b> ). Therefore, these impacts have been screened out of further assessment.  However, there is potential for cumulative effects via the following pathways: <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species; and</li> <li>• temporary increase in SSC and sediment deposition.</li> </ul>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Based on the rationale outlined for other projects (detailed in Table 11.3 and Table 11.4),, the introduction and spread of INNS, changes in marine water quality from HDD drilling fluids, and underwater noise impact pathways are not considered further within the cumulative effects assessment.	
Fish and Shellfish Ecology	Yes	Yes	Potential overlap between the construction and operation phases	Simultaneous cable burial operations may have the potential for cumulative effects via the following pathways: <ul style="list-style-type: none"> <li>• Temporary increase in SSC and sediment deposition.</li> </ul>	Yes
Marine Mammals	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases	Simultaneous cable burial operations may have the potential for cumulative effects via the following pathways: <ul style="list-style-type: none"> <li>• Underwater sound; and</li> <li>• indirect effects from impacts to prey species; and.</li> </ul> <p>As both projects will be adopting standard JNCC guidance, and the spatial overlap is likely to endure for only a very short amount of time, cumulative effects are not likely, and the underwater noise pathway is screened out. It is not considered likely that there could be any cumulative effect in relation to prey items as the effect of the Proposed Project is predicted to be negligible.</p> <p>Based on the rationale outlined for other projects (Table 11.3), airborne sound and visual disturbance, vessel</p>	No



Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				collision risk, and reduction in marine water quality have been screened out of further assessment.	
Marine Ornithology	Yes	Yes	Potential overlap between the construction and operation phases	<p>Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver, as well as increasing temporary disturbance to foraging habitats and further decreasing water quality.</p> <p>Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. As such, direct cumulative disturbance to non-breeding waterbirds is not likely. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases in suspended sediment are likely to be highly localised over a small spatial overlap where the Lionlink is in close proximity to the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea.</p> <p>In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. As a result,</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				there remains a <b>potential for significant cumulative effects</b> related to the disturbance of the red-throated diver.	
Marine Archaeology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases.	<p>LionLink Offshore Interconnector will undergo EIA with suitable mitigation measures recommended.</p> <p>With regards to seabed heritage receptors (known and potential maritime and aviation features) located within the Proposed Project area, it is unlikely that they will be indirectly impacted by changes to the Physical Environment environment caused by the construction or operation of the interconnector.</p> <p>Relevant shared receptors include:</p> <ul style="list-style-type: none"> <li>• Known and potential palaeogeographic features and prehistoric material;</li> <li>• known and potential maritime and aviation sites and associated finds;</li> <li>• coastal and intertidal heritage assets relating to coastal/marine activity (known and potential palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features); and</li> <li>• the historic seascape character of the region.</li> </ul> <p>Relevant shared impact pathways include:</p> <ul style="list-style-type: none"> <li>• Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors including their setting;</li> </ul>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes; and</li> <li>project works that temporarily or permanently change the character of the historic seascape of the region.</li> </ul> <p>Recommended mitigation implemented by both projects is anticipated to be sufficient to minimise impact on marine historic environment receptors and it is expected that there will be <b>no likely significant cumulative effect</b>.</p>	
Shipping and Navigation	Yes	Yes	Potential overlap during construction and operational phases.	<p>The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with LionLink. This communication between the projects will help to avoid any concurrent activities and mean that any effects are minimal.</p> <p><b>There is therefore considered to be no likely significant cumulative effect.</b></p>	No
Commercial Fisheries	Yes	Yes	Potential overlap during construction, operation and maintenance, and decommissioning phases.	The current emerging landfall preference for LionLink is at Southwold/Reydon and an alternative location at Walberswick. However, there one other landfall option at Aldeburgh/Thorpeness, where the Proposed Project makes landfall.	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>Construction is due to commence in 2027 with the final connection date being in 2029 under the current schedule based on project engagement with National Grid Ventures. Coordination will be required to avoid exclusion zones for both projects being implemented at the same time either locally or regionally in important areas for fishers.</p> <p>Further information is required regarding the installation timelines and design for LionLink to be able to rule out the potential of cumulative effects on commercial fisheries receptors during the construction phase.</p> <p>Any cable protection required approaching the overlapping landfall option would occupy an extremely small portion of relatively widespread fishing grounds as identified during fisher consultation. Otherwise, the close proximity of the two buried cables mean it is unlikely for there to be a large magnitude of any effects. Any maintenance works will also be extremely localised and short-term in nature. Thus, there are no likely significant effects during the operation and maintenance phase.</p> <p>Decommissioning plans are currently unknown, but the effects are likely to be similar to those during the construction phase.</p>	
Other Sea Users	Yes	Yes	Potential overlap during construction and operational phases.	<p>Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project. Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Bulletins, NAVTEX, and/or broadcast warnings. <b>Not likely to have significant effect.</b>	

**Table 11.13 Matrix summarising stage 1 and 2 of the Inter-Project CEA - Hanson Aggregate Marine Ltd Area 528/2**

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Physical Environment	Yes	Yes	No	Hanson Aggregate Marine Ltd Area 528/2 commenced in 2017 and has an end date of 31 July 2024. Therefore, no temporal interaction is anticipated between the Proposed Project and Hanson Aggregate Marine Ltd Area 528/2.	No
Benthic Ecology	Yes	Yes	No	Hanson Aggregate Marine Ltd Area 528/2 commenced in 2017 and has an end date of 31 July 2024. Therefore, no temporal interaction is anticipated between the Proposed Project and Hanson Aggregate Marine Ltd Area 528/2. Additionally, Hanson Aggregate Marine Ltd Area 528/2 is located 0.1 km from the Offshore Scheme, beyond the ZOI of any potential impact pathways associated with the operational phase. Therefore, it has not been considered further.	No
Fish and Shellfish Ecology	Yes	Yes	No	Hanson Aggregate Marine Ltd Area 528/2 commenced in 2017 and has an end date of 31 July 2024. Therefore, there is no temporal interaction is anticipated between the Proposed Project and Hanson Aggregate Marine Ltd Area 528/2.	No
Marine Mammals	Yes	Yes	No	Hanson Aggregate Marine Ltd Area 528/2 is located 0.1 km from the Offshore Scheme. However, it commenced in 2017 and has an end date of 31 July 2024. Therefore, no temporal interaction is anticipated between the Proposed Project and Hanson Aggregate Marine Ltd Area 528/2.	No
Marine Ornithology	Yes	Yes	No	Hanson Aggregate Marine Ltd Area 528/2 commenced in 2017 and has an end date of 31 July 2024. Therefore, no	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				temporal interaction is anticipated between the Proposed Project and Hanson Aggregate Marine Ltd Area 528/2.	
Marine Archaeology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases.	<p>Hanson Aggregate Marine Ltd Area 528/2 has undergone EIA with suitable mitigation measures in place. The projects will not physically overlap and are located 0.1 km apart.</p> <p>With regards to seabed heritage receptors (known and potential maritime and aviation features) located within the Proposed Project area, it is unlikely that they will be indirectly impacted by changes to the Physical Environment environment caused by dredging within this aggregate area.</p> <p>Relevant shared receptors include:</p> <ul style="list-style-type: none"> <li>• Known and potential palaeogeographic features and prehistoric material;</li> <li>• known and potential maritime and aviation sites and associated finds;</li> <li>• coastal and intertidal heritage assets relating to coastal/marine activity (known and potential palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features); and</li> <li>• the historic seascape character of the region.</li> </ul> <p>Relevant shared impact pathways include:</p> <ul style="list-style-type: none"> <li>• Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors including their setting;</li> </ul>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes; and</li> <li>project works that temporarily or permanently change the character of the historic seascape of the region.</li> </ul> <p>According to The Crown Estate (The Crown Estate, 2014), the end date for this area is 31 July 2024 and therefore no cumulative effect between the aggregate area and the Proposed Project will occur. If dredging is resumed within Area 528/2 in the future, the recommended mitigation implemented by both projects is anticipated to be sufficient to minimise impact on marine historic environment receptors and it is expected that there will be <b>no likely significant cumulative effect</b>.</p>	
Shipping and Navigation	Yes	Yes	Potential overlap during construction and operational phases.	<p>The Proposed Project route avoids aggregates and mining site agreement areas as according to detailed burial risk assessment and route selection.</p> <p>The Cable Burial Risk Assessment has identified the proposed aggregates extraction area and recommends monitoring the proposal with key contacts in place. Proximity agreements shall be established as according to industry guidelines, as necessary, to manage proximal activities and any specific related risks.</p> <p>It is unlikely for both projects to be active at the same place at the same time. Nonetheless, potential pathways are:</p>	Yes



Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>• Passing vessels of all categories: Collisions leading to loss of life and major damage to equipment; and</li> <li>• disruption to multiple vessels using established routes and areas due activities of the Offshore Scheme.</li> </ul>	
Commercial Fisheries	Yes	Yes	Potential overlap during construction, operation and maintenance, and decommissioning phases.	<p>Hanson Aggregate extraction has been ongoing since 2017, ending in July 2024. In the event that further licence has / will be granted for the site; there is no overlap between the Offshore Scheme Boundary and the aggregate extraction site.</p> <p>Furthermore, the localised and transitory nature of the Proposed Project's cable installation (and the associated exclusion zone), and the mitigation measures that will be implemented, it is expected that there will be <b>no likely significant cumulative effect</b> across the construction, operation, and maintenance phases.</p> <p>Decommissioning plans for the Proposed Project are currently unconfirmed, but the effects are likely to be similar to those during the construction phase.</p>	No
Other Sea Users	Yes	Yes	Potential overlap during construction and operational phases.	<p>The Proposed Project route avoids aggregates and mining site agreement areas as according to detailed burial risk assessment and route selection.</p> <p>The Cable Burial Risk Assessment has identified the proposed aggregates extraction area and recommends monitoring the proposal with key contacts in place. Proximity agreements shall be established as according to</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?	Progress to stage 3 and 4
				Relevant shared receptors and/or pathways?	
				industry guidelines, as necessary, to manage proximal activities and any specific related risks. <b>Not likely to have significant effect.</b>	

**Table 11.14 Matrix summarising stage 1 and 2 of the Inter-Project CEA – Nemo Link**

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Physical Environment	Yes	Yes	Overlap during the operation and decommissioning phases, due to cables crossing.	<p>NEMO Link intersects the Offshore Scheme at KP 113.1. Nemo Link has been fully operational since 2019. Therefore, it is not anticipated that there will be any cumulative impacts from construction phase activities.</p> <p>The cable protection measures installed at the potentially shared landfall site for both projects may collectively impact sediment transport patterns.</p> <p>This assessment for the Proposed Project has been included in <b>Application Document 6.2.4.1 Part 4 Physical Environment</b>.</p>	No
Benthic Ecology	Yes	Yes	Potential overlap during the operation and decommissioning phases, due to cables crossing.	<p>NEMO Link intersects the Offshore Scheme at KP 113.1. Nemo Link has been fully operational since 2019. Therefore, it is not anticipated that there will be any cumulative impacts from construction phase activities. Therefore the following operational impacts have been scoped in for further assessment of cumulative effects:</p> <ul style="list-style-type: none"> <li>• Disturbance to benthic habitats and species due to subsea cable thermal emissions; and</li> <li>• effects from EMF emissions.</li> </ul> <p>Any direct loss of benthic habitats and species at this crossing does not constitute a cumulative effect as it is already considered in <b>Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology</b>.</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Fish and Shellfish Ecology	Yes	Yes		<p>NEMO Link intersects the Offshore Scheme at KP 113.1. Nemo Link has been fully operational since 2019. Therefore, it is not anticipated that there will be any cumulative impacts from construction phase activities. Therefore, there is potential for cumulative effects via the following operational impacts:</p> <ul style="list-style-type: none"> <li>• Disturbance to fish and shellfish due to subsea cable thermal emissions; and</li> <li>• effects from electromagnetic field (EMF) emissions.</li> </ul> <p>Any direct loss of fish and shellfish habitat at this crossing does not constitute a cumulative effect as it is already considered in <b>Application Document 6.2.4.3 Fish and Shellfish</b>.</p>	Yes
Marine Mammals	Yes	Yes	Overlap during the operation and decommissioning phases	<p>NEMO Link intersects the Offshore Scheme at KP 113.1. Nemo Link has been fully operational since 2019. Therefore, it is not anticipated that there will be any cumulative impacts from construction phase activities.</p> <p>However, there is potential for cumulative effects via the following operational impacts:</p> <ul style="list-style-type: none"> <li>• Indirect effects from impacts to prey species.</li> </ul> <p>It is not considered likely that there could be any cumulative effect in relation to prey items as the effect of the Proposed Project is predicted to be negligible.</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Marine Ornithology	Yes	Yes	Potential overlap during operation and maintenance phase	<p>Nemo Link is now fully operational and has undergone EIA with suitable mitigation measures recommended. Any operational impacts to birds are expected to be highly localised and very minor.</p> <p>Red-throated diver has been identified as a sensitive receptor for both Nemo Link and the Proposed Project. However, operation and maintenance activities are expected to occur on a much smaller scale compared to the construction phase.</p> <p>As a result, <b>no likely significant effects</b> are anticipated for any marine bird species.</p>	No
Marine Archaeology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases, due to cables crossing.	<p>Nemo Link is operational and has undergone EIA with suitable mitigation measures recommended. It is essential to ensure that at the intersection of both projects that the depth of the trench(es) and any use of external cable protection are fully assessed as part of the EIA for the potential for direct and indirect impact to marine archaeological receptors. This assessment for the Proposed Project has been included in the ES chapter for marine archaeology (<b>Application Document 6.2.4.6 Part 4 Marine Chapter 7 Marine Archaeology</b>) based on the design information to date.</p> <p>Relevant shared receptors include:</p> <ul style="list-style-type: none"> <li>• Known and potential palaeogeographic features and prehistoric material;</li> <li>• known and potential maritime and aviation sites and associated finds;</li> <li>• coastal and intertidal heritage assets relating to coastal/marine activity (known and potential</li> </ul>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features); and</p> <ul style="list-style-type: none"> <li>the historic seascape character of the region.</li> </ul> <p>Relevant shared impact pathways include:</p> <ul style="list-style-type: none"> <li>Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors including their setting;</li> <li>physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes; and</li> <li>project works that temporarily or permanently change the character of the historic seascape of the region.</li> </ul> <p>Recommended mitigation implemented by both projects is anticipated to be sufficient to minimise impact on marine historic environment receptors and it is expected that there will be <b>no likely significant cumulative effect</b>.</p>	
Shipping and Navigation	Yes	Yes	Potential overlap during operation and maintenance, and decommissioning phases.	The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with Nemo Link. Crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed cables.	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<p>Nemo Link routes through, and makes landfall in, Pegwell Bay, which is an area of shallow and dynamic water depth. The Proposed Project also plans to route through and make landfall in Pegwell Bay.</p> <p>This therefore means greater potential for cumulative effects through the following potential pathways:</p> <ul style="list-style-type: none"> <li>• Passing vessels of all categories: Collisions leading to loss of life and major damage to equipment;</li> <li>• disruption to multiple vessels using established routes and areas due activities of the Offshore Scheme;</li> <li>• anchoring vessels: Vessel drags anchor across exposed cable;</li> <li>• fishing vessels: Gear snagging;</li> <li>• reduction in Under-Keel Clearance; and</li> <li>• vessels navigating with magnetic compass: EMF Interference with marine navigational equipment.</li> </ul>	
Commercial Fisheries	Yes	Yes	Potential overlap during operation and maintenance,	Nemo Link also makes landfall in Pegwell Bay, a sensitive area for commercial fisheries, and has been fully operational since 31 <sup>st</sup> January 2019.	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			and decommissioning phases.	<p>Any cable protection required will occupy an extremely small portion of relatively widespread fishing grounds as identified during fisher consultation and suggested by vessel sightings data. Otherwise, the close proximity of the two buried cables mean it is unlikely for there to be a large magnitude of any effects.</p> <p>There are planned outages for NemoLink in September 2024, 2025, and 2026 for maintenance works, with clear dates published for these. This, alongside the planned communication with fishers Proposed Project mitigate the potential for cumulative effects to occur in Pegwell Bay.</p> <p>Thus, there are <b>no likely significant cumulative effects</b> during the operation and maintenance phase.</p> <p>Decommissioning plans are currently unknown, but timings are highly unlikely to coincide, Therefore, the effects are likely to be similar to those during the construction phase for each individual project.</p>	
Other Sea Users	Yes	Yes	Potential overlap during construction and operational phases with maintenance	<p>Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project.</p> <p>Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. <b>Not likely to have significant effect.</b></p>	No



**Table 11.15 Matrix summarising stage 1 and 2 of the Inter-Project CEA – Thanet Offshore Windfarm**

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Physical Environment	Yes	Yes	Overlap during the operation and decommissioning phases, due to cables crossing.	<p>Thanet Offshore Windfarm has been fully operational since 2010. Therefore, it is not anticipated that there will be any cumulative impacts from construction phase activities. Thanet Offshore Windfarm export cables intersect the Offshore Scheme at KP 107.6 and KP 107.6.</p> <p>The cable protection measures installed at the potentially shared landfall site for both projects may collectively impact sediment transport patterns.</p> <p>This assessment for the Proposed Project has been included in <b>Application Document 6.2.4.1 Part 4 Physical Environment</b>.</p>	No
Benthic Ecology	Yes	Yes	Potential overlap during the operation and decommissioning phases, due to cables crossing.	<p>Thanet Offshore Windfarm has been fully operational since 2010. Therefore, it is not anticipated that there will be any cumulative impacts from construction phase activities. Thanet Offshore Windfarm export cables intersect the Offshore Scheme at KP 107.6 and KP 107.6. Therefore the following operational impacts have been scoped in for further assessment of cumulative effects:</p> <ul style="list-style-type: none"> <li>• Disturbance to benthic habitats and species due to subsea cable thermal emissions; and</li> <li>• effects from EMF emissions.</li> </ul> <p>Any direct loss of benthic habitats and species at this crossing does not constitute a cumulative effect as it is</p>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				already considered in <b>Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology</b> .	
Fish and Shellfish Ecology	Yes	Yes		<p>Thanet Offshore Windfarm has been fully operational since 2010. Therefore, it is not anticipated that there will be any cumulative impacts from construction phase activities.</p> <p>Thanet Offshore Windfarm export cables intersect the Offshore Scheme at KP 107.6 and KP 107.6. Therefore, there is the potential for cumulative effects to occur via the following operational impact pathways:</p> <ul style="list-style-type: none"> <li>• Disturbance to fish and shellfish due to subsea cable thermal emissions; and</li> <li>• effects from electromagnetic field (EMF) emissions.</li> </ul> <p>Any direct loss of fish and shellfish habitat at this crossing does not constitute a cumulative effect as it is already considered in <b>Application Document 6.2.4.3 Fish and Shellfish</b>.</p>	Yes
Marine Mammals	Yes	Yes	Overlap during the operation and decommissioning phases	<p>Thanet Offshore Windfarm export cables intersect the Offshore Scheme at KP 107.6 and KP 107.6. It has been fully operational since 2010. Therefore, it is not anticipated that there will be any cumulative impacts from construction phase activities.</p> <p>However, there is the potential for cumulative effects to occur via the following operational impact pathways:</p> <ul style="list-style-type: none"> <li>• Indirect effects from impacts to prey species.</li> </ul>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				It is not considered likely that there could be any cumulative effect in relation to prey items as the effect of the Proposed Project is predicted to be negligible.	
Marine Ornithology	Yes	Yes	Potential overlap during operation and maintenance phases.	<p>Thanet Offshore Windfarm is now operational and has undergone EIA with suitable mitigation measures recommended. Any operational impacts to birds are expected to be highly localised and very minor.</p> <p>Red-throated diver has been identified as a sensitive receptor for both Thanet Offshore Windfarm and the Proposed Project. However, operation and maintenance activities are expected to occur on a much smaller scale compared to the construction phase.</p> <p>As a result, <b>no likely significant effects</b> are anticipated for any marine bird species.</p>	No
Marine Archaeology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases, due to cables crossing.	<p>Thanet Offshore Windfarm is operational and has undergone EIA with suitable mitigation measures recommended. It is essential to ensure that at the intersection of both projects that the depth of the trench(es) and any use of external cable protection are fully assessed as part of the EIA for the potential for direct and indirect impact to marine archaeological receptors. This assessment for the Proposed Project has been included in the ES chapter for marine archaeology (<b>Application Document 6.2.4.6 Part 4 Marine Chapter 7 Marine Archaeology</b>) based on the design information to date.</p> <p>Relevant shared receptors include:</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>• Known and potential palaeogeographic features and prehistoric material;</li> <li>• known and potential maritime and aviation sites and associated finds;</li> <li>• coastal and intertidal heritage assets relating to coastal/marine activity (known and potential palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features); and</li> <li>• the historic seascape character of the region.</li> </ul> <p>Relevant shared impact pathways include:</p> <ul style="list-style-type: none"> <li>• Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors including their setting;</li> <li>• physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes; and</li> <li>• project works that temporarily or permanently change the character of the historic seascape of the region.</li> </ul> <p>Recommended mitigation implemented by both projects is anticipated to be sufficient to minimise impact on marine historic environment receptors and it is expected that there will be <b>no likely significant cumulative effect</b>.</p>	

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Shipping and Navigation	Yes	Yes	Potential overlap during operation and maintenance, and decommissioning phases.	<p>The Proposed Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with Thanet Offshore Windfarm. Cable crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed cables.</p> <p>Thanet Offshore Windfarm is now operational and has undergone EIA with suitable mitigation measures recommended. The export cable for Thanet Offshore Windfarm is also routes through and makes landfall in Pegwell Bay which is already an area of shallow and dynamic water depth.</p> <p>This therefore means greater potential for cumulative effects through the following potential pathways:</p> <ul style="list-style-type: none"> <li>• Passing vessels of all categories: Collisions leading to loss of life and major damage to equipment;</li> <li>• disruption to multiple vessels using established routes and areas due activities of the Offshore Scheme;</li> <li>• anchoring vessels: Vessel drags anchor across exposed cable;</li> <li>• fishing vessels: Gear snagging;</li> </ul>	Yes

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>• reduction in Under-Keel Clearance; and</li> <li>• vessels navigating with magnetic compass: EMF Interference with marine navigational equipment.</li> </ul>	
Commercial Fisheries	Yes	Yes	Potential overlap during operation and maintenance phases.	<p>Thanet Offshore Windfarm has been operational since 2010.</p> <p>Cable protection will likely be required where crossings exist, however the Proposed Project's cable protection will be extremely localised relative to available fishing grounds; and has been designed to minimise the risk of fishing gears snagging.</p> <p>Any maintenance works by Thanet Offshore Windfarm will be highly localised and likely to be short-term in nature.</p> <p>Thus, it is expected that there will be <b>no likely significant cumulative effects</b> during the operation and maintenance phase.</p> <p>Decommissioning plans are currently unknown, but timings are highly unlikely to coincide, Therefore, the effects are likely to be similar to those during the construction phase for each individual project.</p>	No
Other Sea Users	Yes	Yes	Potential overlap during construction and operational phases with maintenance	<p>Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project.</p> <p>Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins,</p>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				NAVTEX, and/or broadcast warnings. <b>Not likely to have significant effect.</b>	

**Table 11.16 Matrix summarising stage 1 and 2 of the Inter-Project CEA – London Array Offshore Windfarm**

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Physical Environment	<b>Yes</b>	<b>Yes</b>	<b>No</b>	Construction of phase 1 of the wind farm began in 2011 and inaugurated in 2013. Therefore, no temporal interaction is anticipated between the Proposed Project and the London Array Offshore Windfarm during the construction phase.	<b>No</b>
Benthic Ecology	<b>Yes</b>	<b>Yes</b>	<b>No</b>	Construction of phase 1 of the wind farm began in 2011 and inaugurated in 2013. Therefore, no temporal interaction is anticipated between the Proposed Project and the London Array Offshore Windfarm during the construction phase. Additionally, the London Array Offshore Windfarm is located 1.2 km from the Offshore	<b>No</b>

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Scheme, beyond the ZOI of any potential impact pathways associated with the operational phase. Therefore, it has not been considered further.	
Fish and Shellfish Ecology	Yes	Yes	Potential overlap during operation phase	<p>Construction of phase 1 of the wind farm began in 2011 and inaugurated in 2013. Therefore, no temporal interaction is anticipated between the Proposed Project and the London Array Offshore Windfarm during the construction phase.</p> <p>The development is located 1.2 km away from the Offshore Scheme. Operational effects including EMF emissions and thermal effects are highly localised and therefore there is also no potential for cumulative effects during the operational stage. Therefore, it has not been considered further.</p>	No
Marine Mammals	Yes	Yes	No	Construction of phase 1 of the wind farm began in 2011 and was inaugurated in 2013. Therefore, no temporal interaction is anticipated between the Proposed Project and the London Array Offshore Windfarm during the construction phase.	No
Marine Ornithology	Yes	Yes	Potential overlap during operation, maintenance and decommissioning phases.	<p>The London Array Offshore Windfarm is now operational. Any operational impacts to birds are expected to be highly localised and very minor.</p> <p>Red-throated diver has been identified as a sensitive receptor for both Thanet Offshore Windfarm and the Proposed Project. However, operation and maintenance activities are expected to occur on a much smaller scale compared to the construction phase.</p> <p>As a result, <b>no likely significant effects</b> are anticipated for any marine bird species.</p>	No



Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Marine Archaeology	Yes	Yes	Potential overlap during the construction, operation and decommissioning phases.	<p>London Array Offshore Windfarm is operational and has undergone EIA with suitable mitigation measures recommended. The projects will not physically overlap and the closest turbine is located just under 2 km away.</p> <p>With regards to seabed heritage receptors (known and potential maritime and aviation features) located within the Proposed Project area, it is unlikely that they will be indirectly impacted by changes to the Physical Environment environment caused by the construction or operation of the nuclear power plant.</p> <p>Relevant shared receptors include:</p> <ul style="list-style-type: none"> <li>• Known and potential palaeogeographic features and prehistoric material;</li> <li>• known and potential maritime and aviation sites and associated finds;</li> <li>• coastal and intertidal heritage assets relating to coastal/marine activity (known and potential palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features); and</li> <li>• the historic seascape character of the region.</li> </ul> <p>Relevant shared impact pathways include:</p> <ul style="list-style-type: none"> <li>• Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors including their setting;</li> </ul>	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				<ul style="list-style-type: none"> <li>physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes; and</li> <li>project works that temporarily or permanently change the character of the historic seascape of the region.</li> </ul> <p>Recommended mitigation implemented by both projects is anticipated to be sufficient to minimise impact on marine historic environment receptors and it is expected that there will be <b>no likely significant cumulative effect</b>.</p>	
Shipping and Navigation	Yes	Yes	Potential overlap during operation, maintenance and decommissioning phases.	<p>The London Array Offshore Windfarm is now operational, with part of the array area overlapping the Offshore Scheme Boundary.</p> <p>Any maintenance works by London Array Offshore Windfarm will be highly localised and likely to be short-term in nature and highly unlikely to coincide with any activities related to the Proposed Project.</p> <p>Furthermore, it is expected that communication between developers regarding cable installation within the London Array area will reduce any potential for activities to overlap temporally.</p>	No
Commercial Fisheries	Yes	Yes	Potential overlap during operation, maintenance and	London Array Offshore Windfarm has been operational since 2013; with part of the array area overlapping the Offshore Scheme Boundary.	No

Technical discipline	Within technical discipline specific ZOI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect?  Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			decommissioning phases.	<p>Any maintenance works by London Array Offshore Windfarm will be highly localised and likely to be short-term in nature and highly unlikely to coincide with any activities related to the Proposed Project.</p> <p>The operational presence of the Proposed Project's cable is also not anticipated to have any significant effects.</p> <p>Furthermore, it is expected that communication between developers regarding cable installation within the London Array area, reduce any potential for installation activities to overlap temporally.</p> <p>Thus, it is expected that there will be <b>no likely significant cumulative effects</b> during the operation and maintenance phase.</p> <p>Decommissioning plans are currently unknown, but the effects are likely to be similar to those during the construction phase for each individual project.</p>	
Other Sea Users	Yes	Yes	Potential overlap during construction and operational phases with maintenance	<p>Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project.</p> <p>Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. <b>Not likely to have significant effect.</b></p>	No

## Stage 3

- 11.2.10 Further information on all these other developments is provided in **Application Document 6.3.4.11.A Appendix 4.11.A Descriptions of Other Projects** in order to support stage 3. This appendix provides further information on the design, construction, and programme for the other developments.

## Stage 4

- 11.2.11 Stage 4 has entailed undertaking a CEA for the 'short list' of developments where that development has been taken through to stage 4 for a particular topic, as defined in the Stage 2 Tables above. The results of this assessment are reported in matrix format for each topic in the tables below. Where topics have not carried through any developments to stage 3 and stage 4, subsequent CEA tables have not been provided. Where the effects across projects are the same, columns have been merged together for ease.
- 11.2.12 Professional judgement alongside topic specific standards and guidance outlined within each chapter, and the criteria presented in **Application Document 6.3.1.5.A Appendix 1.5.A Cumulative Effects Assessment Methodologies** has been applied in determining whether the combination of effects from two developments could result in a significant effect overall. As a guide and to aid consistency and transparency of how professional judgement has been applied, a 'significance matrix' has been developed, as presented in **Application Document 6.3.1.5.A Appendix 1.5.A Cumulative Effects Assessment Methodologies**.
- 11.2.13 Where the effects on shared receptors from the Proposed Project and from the 'other developments' are identical, the corresponding columns in Table 11.17 – Table 11.24 Stage 4 tables below have been combined.

**Table 11.17 Physical Environment CEA**

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
Sizewell C Nuclear Power Plant	Local hydrodynamic, wave and sediment transport regimes Coastal geomorphology and associated sediment transport regimes		A wider area of seafloor morphology and seafloor morphological features (i.e. bedforms) may be altered during the simultaneous installation activities. However, seafloor and bedform recovery is expected via natural sediment transport processes once activities have stopped. There will be <b>no likely significant cumulative effect</b> .	No further cumulative mitigation required.	<b>No significant cumulative effect</b>
NeuConnect	Local hydrodynamic, wave and sediment transport regimes		Any impacts associated with cable protection measures installed for both projects that may collectively impact sediment transport patterns are assessed to have <b>no likely significant cumulative effect</b> as their placement will be at discrete locations where any impact will be localised with a low impact magnitude.	No further cumulative mitigation required.	<b>No significant cumulative effect</b>
Gridlink North Falls Offshore Windfarm Nautilus	Sediment transport patterns as a result of cable protection.		Any impacts associated with cable protection measures installed for both projects that may collectively impact sediment transport patterns are assessed to have <b>no likely significant cumulative effect</b> as their placement will be at	No further cumulative mitigation required.	<b>No significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
Five Estuaries			discrete locations where any impact will localised with a low impact magnitude.		
East Anglia ONE North Offshore Windfarm	Sediment transport patterns as a result of cable protection.	Impacts on the coralline crag ridges	<p>The use of HDD drilling techniques at the landfall will minimise seabed disturbance and avoid the need for cable protection in the intertidal and shallow nearshore area. It is likely that there will be <b>no significant cumulative effect</b>.</p> <p>These projects are in close proximity to the Coralline Crag Ridges. The cumulative impact of the projects on this geological feature may be to change the surficial sediment composition of the Ridges as the combined amount of sediment suspended during cable burial operations are transported deposited onto the ridges. The impact is likely to be temporary as the finer sediment is likely to be re-suspended under higher current speeds or storm wave activity. However, some small, localized zones that are sheltered from current and wave action may experience permanent change to the sediment composition.</p> <p>Commitments have been made for East Anglia ONE North, East Anglia TWO and East Anglia THREE windfarms:</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>
East Anglia TWO Offshore Windfarm					
East Anglia THREE Offshore Windfarm					

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			<ul style="list-style-type: none"> <li>To install the export cable using HDD techniques to minimise disturbance south of the Coraline Crag ridges and at landfall; and</li> <li>selection of the preferred landfall location for the export cable towards the southern end of the offshore cable corridor boundary that avoids the Coraline Crag outcrop.</li> </ul> <p>Based on these commitments, the impact on the Coraline Crag sedimentary composition is likely <b>to have no significant cumulative effect</b></p>		

**Table 11.18 Benthic Ecology CEA**

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
Sizewell C Nuclear Power Plant	The key impact pathway that Sizewell C Nuclear Power Plant and the Proposed Project share is the temporary increase in SSC and sediment deposition.		<p><b>Not significant</b></p> <p>The boundary for all offshore developments at Sizewell C is approximately 5 km northeast of the Offshore Scheme.</p> <p>There is the potential for some overlap in a temporary increase in SSC and sediment deposition, but at this distance any increase SSC will be very limited and any sediment deposition will be limited to a thickness which is unlikely to be detectable in the field. Therefore, any observable cumulative effects are extremely unlikely.</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>
NeuConnect	<p>The key impact pathways are:</p> <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species;</li> <li>• temporary increase in SSC and sediment deposition;</li> <li>• direct loss of benthic habitats and species due to placement of hard substrates on the seabed;</li> </ul>		<p><b>Not significant</b></p> <p>The Proposed Project crosses the Neuconnect HVDC cable route at KP 50.7. At this crossing, it is expected that cable protection, such as rock placement and/or addition of concrete mattresses will be required. The habitat present at this cable crossing has been identified as circalittoral fine sand. Given the prevalence of this habitat within the wider North Sea area and the small spatial scale of permanent loss or</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>



Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
	<ul style="list-style-type: none"> <li>disturbance to benthic habitats and species due to subsea cable thermal emissions; and</li> <li>effects from EMF emissions.</li> </ul>		<p>temporary disturbance it is not anticipated that there will be a significant cumulative impact.</p> <p>There is the potential for some overlap in a temporary increase in SSC and sediment deposition. Any significant increase in elevated SSC and deposition will be have a limited area of effect, localised to the Proposed Project cable. Therefore, given the limited and temporary nature of any significant impact, any observable cumulative effects are extremely unlikely.</p> <p>Effects from EMF and thermal emissions on benthic ecology receptors associated with the Proposed Project were concluded to be extremely limited and of a negligible magnitude (<b>Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology</b>). Therefore, any cumulative effects will be local and small in scale so not considered to be significant.</p>		
GridLink Interconnector	<p>The key impact pathways are:</p> <ul style="list-style-type: none"> <li>Temporary physical disturbance to habitats and species;</li> </ul>		<p><b>Not significant</b></p> <p>The Proposed Project crosses the Gridlink cable route at one location at KP 101.3. At this crossing, it is expected that cable protection, such as rock placement and/or addition of concrete mattresses will be required. The habitat</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
	<ul style="list-style-type: none"> <li>• temporary increase in SSC and sediment deposition;</li> <li>• direct loss of benthic habitats and species due to placement of hard substrates on the seabed;</li> <li>• disturbance to benthic habitats and species due to subsea cable thermal emissions; and</li> <li>• effects from EMF emissions.</li> </ul>		<p>present at this cable crossing has been identified as circalittoral mixed sediment. Given the prevalence of this habitat within the wider North Sea area and the small spatial scale of permanent loss or temporary disturbance it is not anticipated that the cumulative impact would compromise the functional integrity of general habitats and species or diminish biodiversity at the regional scale.</p> <p>There is the potential for some overlap in a temporary increase in SSC and sediment deposition. Any significant increase in elevated SSC and deposition will have a limited area of effect, localised to the Proposed Project cable. Therefore, given the limited and temporary nature of any significant impact, any observable cumulative effects are extremely unlikely.</p> <p>Effects from EMF and thermal emissions on benthic ecology receptors associated with the Proposed Project were concluded to be extremely limited and of a negligible magnitude (<b>Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology</b>). Therefore, any cumulative effects will be local and small in scale so not considered to be significant.</p>		

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
North Falls Offshore Windfarm	<p>The key impact pathways are:</p> <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species;</li> <li>• temporary increase in SSC and sediment deposition;</li> <li>• direct loss of benthic habitats and species due to placement of hard substrates on the seabed;</li> <li>• disturbance to benthic habitats and species due to subsea cable thermal emissions; and</li> <li>• effects from EMF emissions.</li> </ul>		<p><b>Not significant</b></p> <p>The North falls Offshore Windfarm will include two HVAC subsea cables that will cross the Offshore Scheme at KP 52.0 and KP 53.0. The habitat present at these cable crossings has been identified as circalittoral coarse sediment. Given the prevalence of this habitat within the wider North Sea area and the small spatial scale of permanent loss or temporary disturbance it is not anticipated that there will be a significant cumulative impact.</p> <p>There is the potential for some overlap in a temporary increase in SSC and sediment deposition. Any significant increase in elevated SSC and deposition will have a limited area of effect, localised to the Proposed Project cable. Therefore, given the limited and temporary nature of any significant impact, any observable cumulative effects are extremely unlikely.</p> <p>Effects from EMF and thermal emissions on benthic ecology receptors associated with the Proposed Project were concluded to be extremely limited and of a negligible magnitude (<b>Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology</b>). Therefore, any cumulative</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			effects will be local and small in scale so not considered to be significant.		
East Anglia ONE North Offshore Windfarm	The key impact pathway for both East Anglia ONE North Offshore Windfarm and East Anglia TWO Offshore Windfarm is the temporary increase in SSC and sediment deposition.		<b>Not significant</b> The subsea cable corridor for East Anglia ONE North Offshore Windfarm, which is the same as that for East Anglia TWO Offshore Windfarm, is approximately 0.36 km northeast of the Offshore Scheme.	No further cumulative mitigation required.	<b>No significant cumulative effect</b>
East Anglia TWO Offshore Windfarm			There is the potential for some overlap in a temporary increase in SSC and sediment deposition, but at this distance any increase SSC will be very limited and any sediment deposition will be limited to a thickness which is unlikely to be detectable in the field. Therefore, any observable cumulative effects are extremely unlikely.		
East Anglia THREE Offshore Windfarm	The key impact pathways are: <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species;</li> <li>• temporary increase in SSC and sediment deposition;</li> <li>• direct loss of benthic habitats and species due to placement</li> </ul>		<b>Not significant</b> The East Anglia THREE Offshore Windfarm will include two HVAC subsea cables that will cross the Offshore Scheme at KP 11.4 and KP 14.5. Given the small spatial scale of permanent loss or temporary disturbance it is not anticipated that the cumulative impact would compromise the functional integrity of general habitats and species or diminish biodiversity at the regional scale.	No further cumulative mitigation required.	<b>No significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
		<p>of hard substrates on the seabed;</p> <ul style="list-style-type: none"> <li>disturbance to benthic habitats and species due to subsea cable thermal emissions; and</li> <li>effects from EMF emissions.</li> </ul>	<p>There is the potential for some overlap in a temporary increase in SSC and sediment deposition. Any significant increase in elevated SSC and deposition will have a limited area of effect, localised to the Proposed Project cable. Therefore, given the limited and temporary nature of any significant impact, any observable cumulative effects are extremely unlikely.</p> <p>Effects from EMF and thermal emissions on benthic ecology receptors associated with the Proposed Project were concluded to be extremely limited and of a negligible magnitude (<b>Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology</b>). Therefore, any cumulative effects will be local and small in scale so not considered to be significant.</p>		
Nautilus Offshore Interconnector	<p>The key impact pathways are:</p> <ul style="list-style-type: none"> <li>Temporary physical disturbance to habitats and species; and</li> <li>temporary increase in SSC and sediment deposition.</li> </ul>		<p><b>Not significant</b></p> <p>The Nautilus Offshore Interconnector potential routing options currently overlap with the Offshore Scheme at the Suffolk Landfall, with the cables unlikely to cross at this location.</p> <p>Given the small spatial scale of any temporary disturbance, it is not anticipated that the cumulative impact would compromise the functional integrity</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			<p>of general habitats and species or diminish biodiversity at the regional scale.</p> <p>There is the potential for some overlap in a temporary increase in SSC and sediment deposition. Any significant increase in elevated SSC and deposition will have a limited area of effect, localised to the Proposed Project cable. Therefore, given the limited and temporary nature of any significant impact, any observable cumulative effects are extremely unlikely.</p>		
Five Estuaries Offshore Windfarm	<p>The key impact pathways are:</p> <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species;</li> <li>• temporary increase in SSC and sediment deposition;</li> <li>• direct loss of benthic habitats and species due to placement of hard substrates on the seabed;</li> <li>• disturbance to benthic habitats and species due to subsea cable thermal emissions; and</li> <li>• effects from EM emissions.</li> </ul>		<p><b>Not significant</b></p> <p>The Five Estuaries Offshore Windfarm will include two HVAC subsea cables that will cross the Offshore Scheme at KP 50.2 and KP 52.7. At this crossing, it is expected that cable protection, such as rock placement and/or addition of concrete mattresses will be required. The habitat present at these cable crossings has been identified as circalittoral fine and sand and mixed sediment. Given the prevalence of these habitats within the wider North Sea area and the small spatial scale of permanent loss or temporary disturbance it is not anticipated that the cumulative impact would compromise the functional integrity of</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			<p>general habitats and species or diminish biodiversity at the regional scale.</p> <p>There is the potential for some overlap in a temporary increase in SSC and sediment deposition. Any significant increase in elevated SSC and deposition will have a limited area of effect, localised to the Proposed Project cable. Therefore, given the limited and temporary nature of any significant impact, any observable cumulative effects are extremely unlikely.</p> <p>Effects from EMF and thermal emissions on benthic ecology receptors associated with the Proposed Project were concluded to be extremely limited and of a negligible magnitude (<b>Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology</b>). Therefore, any cumulative effects will be local and small in scale so not considered to be significant.</p>		
Lionlink Offshore Interconnector	<p>The key impact pathways are:</p> <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species; and</li> <li>• temporary increase in SSC and sediment deposition.</li> </ul>		<p><b>Not significant</b></p> <p>The Lionlink Offshore Interconnector is located 0 km from the Offshore Scheme. However, the HVDC subsea cable is unlikely to cross the Proposed Project cable due to the direction that the cable is coming from.</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			<p>Given the small spatial scale of any temporary disturbance, it is not anticipated that the cumulative impact would compromise the functional integrity of general habitats and species or diminish biodiversity at the regional scale.</p> <p>There is the potential for some overlap in a temporary increase in SSC and sediment deposition. Any significant increase in elevated SSC and deposition will have a limited area of effect, localised to the Proposed Project cable. Therefore, given the limited and temporary nature of any significant impact, any observable cumulative effects are extremely unlikely.</p>		
NEMO Link	<p>The key impact pathways are:</p> <ul style="list-style-type: none"> <li>Disturbance to benthic habitats and species due to subsea cable thermal emissions; and</li> <li>effects from EMF emissions.</li> </ul>		<p><b>Not significant</b></p> <p>NEMO Link intersects the Offshore Scheme at KP 113.1. NEMO Link has been fully operational since 2019. Therefore, it is not anticipated that there will be any cumulative impacts from construction phase activities.</p> <p>Effects from EMF and thermal emissions on benthic ecology receptors associated with the Proposed Project were concluded to be extremely limited and of a negligible magnitude (<b>Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology</b>). Therefore, any cumulative</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>



Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			effects will be local and small in scale so not considered to be significant.		
Thanet Offshore Windfarm	<p>The key impact pathways, which are expected to be the same for all considered projects are:</p> <ul style="list-style-type: none"> <li>Disturbance to benthic habitats and species due to subsea cable thermal emissions; and</li> <li>effects from EMF emissions.</li> </ul>		<p><b>Not significant</b></p> <p>Thanet Offshore Windfarm export cables intersect the Offshore Scheme at KP 107.6 and KP 107.6.</p> <p>Thanet Offshore Windfarm has been fully operational since 2010. Therefore, it is not anticipated that there will be any cumulative impacts from construction phase activities.</p> <p>Effects from EMF and thermal emissions on benthic ecology receptors associated with the Proposed Project were concluded to be extremely limited and of a negligible magnitude (<b>Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology</b>). Therefore, any cumulative effects will be local and small in scale so not considered to be significant.</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>

**Table 11.19 Fish and Shellfish CEA**

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the ‘other developments’	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
NeuConnect	<p>The key impact pathways are:</p> <ul style="list-style-type: none"><li>• Temporary physical disturbance to habitats and species;</li><li>• temporary increase in SSC and sediment deposition;</li><li>• underwater sound;</li><li>• permanent loss of fish and shellfish habitat due to placement of hard substrates on the seabed;</li><li>• disturbance to fish and shellfish due to subsea cable thermal emissions; and</li><li>• effects from electromagnetic</li></ul>	<p><b>Not significant</b></p> <p>The Proposed Project crosses the NeuConnect HVDC cable route at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. The permanent loss of habitat due to crossing of cables and subsequent rock placement has been accounted for in this Project’s design and addressed as part of the ES. Any additional permanent habitat loss is only expected to occur within small areas. This may result in a small loss of suitable herring habitat, however this area is not considered to represent important herring grounds. The sandeel habitat likely to be affected is considered important, but suitable sandeel habitat is widespread in the central and southern North Sea. Therefore, any small loss of habitat is considered to be very minor compared to the widespread availability of suitable sandeel habitat. Similarly, any temporary physical disturbance is also expected to be minor and localised</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>	

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
		field (EMF) emissions.	<p>compared to the wide availability of habitat.</p> <p>Any increase in SSC and sediment deposition is considered to be dominated by coarse sands which are expected to deposit within a very localised area of the disturbance, between 24 hours and 14 days following the disturbance event.</p> <p>Underwater sound is expected to be produced by the Proposed Project and NeuConnect. However, for the Proposed Project, only underwater sound produced by geophysical surveys is expected to be perceptible to fish, which is considered to be very small scale. Furthermore, due to the very short period over which underwater sound is likely to be produced, this is not expected to overlap with underwater sound production from any other developments.</p> <p>During operation, there is also the potential for cumulative effects resulting from EMF emissions at cable crossings. Whilst it is acknowledged that at crossings with other power cables, the potential increase in EMF is higher, the</p>		

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the ‘other developments’	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			area where cables cross and interact is very small and as EMF reduces with distance any increase is also expected to be highly localised.  Similarly, small increases in thermal effects are also expected. However, the sea water in the North Sea varies seasonally and therefore it is anticipated that small cumulative temperature increases at cable crossing will be accommodated by fish and shellfish receptors.		
GridLink Interconnector			<b>Not significant</b> Similar to the above, any cumulative effects during the construction and operation phases are expected to be minor, localised, small scale, and within normal fluctuations which can be accommodated by fish and shellfish receptors.	No further cumulative mitigation required.	<b>No significant cumulative effect</b>
North Falls Offshore Windfarm			<b>Not significant</b> Similar to the above, any cumulative effects during the construction and operation phases are expected to be minor, localised, small scale, and within normal fluctuations which can be accommodated by fish and shellfish receptors.	No further cumulative mitigation required.	<b>No significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the ‘other developments’	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
East Anglia ONE North Offshore Windfarm	The key impact pathway is: <ul style="list-style-type: none"><li>Temporary increase in SSC and sediment deposition.</li></ul>	<b>Not significant</b> The subsea cable corridor for EA1N, which is the same as that for EA2, is approximately 0.4 km from the Proposed Project near the Suffolk landfall. The two corridors are within 1.5 km of each for a distance of approximately 3.5 km.  There is the potential for some overlap in sediment deposition, but the area is very limited and mostly at a distance where dilutionary processes result in only minimal sediment deposition. Fine sediments deposited are also likely to winnow away over time such that any observable cumulative effects are extremely unlikely.  All other pathways are within a few metres of the activity and so there is no potential for overlap in effects.	No further cumulative mitigation required.	<b>No significant cumulative effect</b>	
East Anglia TWO Offshore Windfarm					
East Anglia THREE Offshore Windfarm	The key impact pathways are: <ul style="list-style-type: none"><li>Temporary physical disturbance to habitats and species;</li><li>temporary increase in SSC and sediment deposition;</li><li>underwater sound;</li></ul>	<b>Not significant</b> The Proposed Project crosses the East Anglia THREE export cable corridor at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or	No further cumulative mitigation required.	<b>No significant cumulative effect</b>	

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
	<ul style="list-style-type: none"> <li>• permanent loss of fish and shellfish habitat due to placement of hard substrates on the seabed;</li> <li>• disturbance to fish and shellfish due to subsea cable thermal emissions; and</li> <li>• effects from electromagnetic field (EMF) emissions.</li> </ul>		<p>addition of mattresses. The crossing of cables has been accounted for in this Project's design and addressed as part of the ES. Any additional permanent habitat loss is only expected to occur within small areas. This may result in a small loss of suitable herring habitat, however this is not considered to represent important herring grounds. The sandeel habitat likely to be affected is considered important, but suitable sandeel habitat is widespread in the central and southern North Sea. Therefore, any small loss of habitat is considered to be very minor compared to the widespread availability of suitable sandeel habitat. Similarly, any temporary physical disturbance is also expected to be minor and localised compared to the wide availability of habitat. Any increase in SSC and sediment deposition is considered to be dominated</p>		

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			<p>by coarse sands which are expected to deposit within a very localised area of the disturbance, between 24 hours and 14 days following the disturbance event.</p> <p>Underwater sound is expected to be produced by the Proposed Project and East Anglia THREE. However, for the Proposed Project, only underwater sound produced by geophysical surveys is expected to be perceptible to fish, which is considered to be very small scale. Furthermore, due to the very short period over which underwater sound is likely to be produced, this is not expected to overlap with underwater sound production from any other developments. During operation, there is also the potential for cumulative effects resulting from EMF emissions at cable crossings. Whilst it is acknowledged that at crossings with other power cables, the potential increase in EMF is higher, the area</p>		

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			<p>where cables cross and interact is very small and as EMF reduces with distance any increase is also expected to be highly localised.</p> <p>Similarly, small increases in thermal effects are also expected. However, the sea water in the North Sea varies seasonally and therefore it is anticipated that small cumulative temperature increases at cable crossing will be accommodated by fish and shellfish receptors.</p>		
Nautilus Offshore Interconnector	<p>The key impact pathway is:</p> <ul style="list-style-type: none"> <li>• Temporary increase in SSC and sediment deposition.</li> </ul>		<p><b>Not significant</b></p> <p>The Nautilus potential routing options currently overlap with the Offshore Scheme at the Suffolk landfall, but the cables are unlikely to cross.</p> <p>There is the potential for small increases in SSC and sediment deposition if the two cables are installed simultaneously. However, increased SSC and sediment</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>



Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			deposition is expected to be dominated by coarse sediments which are expected to deposit within close proximity. Any fines are likely to winnow away over time such that any observable cumulative effects are extremely unlikely.		
Five Estuaries Offshore Windfarm	<p>The key impact pathways are:</p> <ul style="list-style-type: none"> <li>• Temporary physical disturbance to habitats and species;</li> <li>• temporary increase in SSC and sediment deposition;</li> <li>• underwater sound;</li> <li>• permanent loss of fish and shellfish habitat due to placement of hard substrates on the seabed;</li> <li>• disturbance to fish and shellfish due to subsea cable thermal emissions; and</li> <li>• effects from electromagnetic field (EMF) emissions.</li> </ul>		<p><b>Not significant</b></p> <p>The Proposed Project crosses the Five Estuaries Offshore Windfarm export cable corridor at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. The crossing of cables has been accounted for in this Project's design and addressed as part of the ES. Any additional permanent habitat loss is only expected to occur within small areas. This may result in a small loss of suitable herring habitat, however this is not considered to represent important herring</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			<p>grounds. The sandeel habitat likely to be affected is considered important, but suitable sandeel habitat is widespread in the central and southern North Sea. Therefore, any small loss of habitat is considered to be very minor compared to the widespread availability of suitable sandeel habitat. Similarly, any temporary physical disturbance is also expected to be minor and localised compared to the wide availability of habitat. Any increase in SSC and sediment deposition is considered to be dominated by coarse sands which are expected to deposit within a very localised area of the disturbance, between 24 hours and 14 days following the disturbance event. Underwater sound is expected to be produced by the Proposed Project and Five Estuaries. However, for the Proposed Project, only</p>		

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			<p>underwater sound produced by geophysical surveys is expected to be perceptible to fish, which is considered to be very small scale. Furthermore, due to the very short period over which underwater sound is likely to be produced, this is not expected to overlap with underwater sound production from any other developments. During operation, there is also the potential for cumulative effects resulting from EMF emissions at cable crossings. Whilst it is acknowledged that at crossings with other power cables, the potential increase in EMF is higher, the area where cables cross and interact is very small and as EMF reduces with distance any increase is also expected to be highly localised.</p> <p>Similarly, small increases in thermal effects are also expected. However, the sea water in the North Sea varies seasonally and therefore it is anticipated that small</p>		

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			cumulative temperature increases at cable crossing will be accommodated by fish and shellfish receptors.		
Lionlink Offshore Interconnector	<p>The key impact pathway is:</p> <ul style="list-style-type: none"> <li>• Temporary increase in SSC and sediment deposition.</li> </ul>		<p><b>Not significant</b></p> <p>The Lionlink cable corridor and the Proposed Project are unlikely to cross. However, there is potential for cumulative increases in SSC and sediment deposition if the two developments are installed simultaneously. However, increased SSC and sediment deposition is expected to be dominated by coarse sediments which are expected to deposit within close proximity. Any fines are likely to winnow away over time such that any observable cumulative effects are extremely unlikely.</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>
NEMO Link	<p>The key impact pathways are:</p> <ul style="list-style-type: none"> <li>• Disturbance to fish and shellfish due to subsea cable</li> </ul>	<p><b>Not Significant</b></p> <p>As Nemo Link and Thanet Offshore Windfarm are already operational, construction phase impacts have not</p>		No further cumulative mitigation required.	<b>No significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
Thanet Offshore Windfarm	<ul style="list-style-type: none"> <li>thermal emissions; and</li> <li>effects from electromagnetic field (EMF) emissions.</li> </ul>	<p>thermal emissions; and</p> <p>effects from electromagnetic field (EMF) emissions.</p>	<p>been assessed. However, both developments intersect the Offshore Scheme and therefore small cumulative increases in EMF and thermal emissions may occur. However, whilst it is acknowledged that at crossings with other power cables, the potential increase in EMF is higher, the area where cables cross and interact is very small and as EMF reduces with distance any increase is also expected to be highly localised.</p> <p>Similarly, small increases in thermal effects are also expected. However, the sea water in the North Sea varies seasonally and therefore it is anticipated that small cumulative temperature increases at cable crossing will be accommodated by fish and shellfish receptors.</p>		

**Table 11.20 Marine Mammals CEA**

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
Sizewell C Nuclear Power Plant	<p>Key impact pathways are:</p> <ul style="list-style-type: none"> <li>Underwater sound; and</li> <li>indirect effects from impacts to prey species.</li> </ul>		<p>As all projects will be adopting standard JNCC guidance, and the spatial overlap is likely to endure for only a very short amount of time, cumulative effects are not likely, and the underwater noise pathway is screened out. It is not considered likely that there could be any cumulative effect in relation to prey items as the effect of the Proposed Project is predicted to be negligible.</p> <p><b>No Cumulative Effects anticipated</b></p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>
NeuConnect					
North Falls Offshore Windfarm					
East Anglia ONE North Offshore Windfarm					
East Anglia TWO Offshore Windfarm					
East Anglia THREE Offshore Windfarm					
Nautilus Offshore Interconnector					

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
Five Estuaries Offshore Windfarm					
Lionlink Offshore Interconnector					
GridLink	Key impact pathways are: <ul style="list-style-type: none"><li>Underwater sound;</li><li>airborne sound; and</li><li>indirect effects from impacts to prey species.</li></ul>		As both projects will be adopting standard JNCC guidance, and the spatial overlap is likely to endure for only a very short amount of time, cumulative effects are not likely, and the underwater noise pathway is screened out. It is not considered likely that there could be any cumulative effect in relation to prey items as the effect of the Proposed Project is predicted to be negligible. <b>No Cumulative Effects anticipated</b>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>
NEMO Link	<ul style="list-style-type: none"><li>indirect effects from impacts to prey species.</li></ul>				
Thanet Offshore Windfarm			The key impact pathway for these developments is indirect effects from impacts to prey species. It is not considered likely that there	No further cumulative mitigation required.	<b>No significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			could be any cumulative effect in relation to prey items as the effect of the Proposed Project is predicted to be negligible. <b>No Cumulative Effects anticipated</b>		

**Table 11.21 Marine Ornithology CEA**

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
Sizewell C Nuclear Power Plant NeuConnect GridLink	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to		Simultaneous construction activities from the Proposed Project and the other development in and around the marine environment could collectively increase	To reduce impacts on red-throated diver, which are considered to be the most sensitive species, National Grid has committed to implementing a full seasonal restriction	<b>No significant cumulative effect</b>



Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
North Falls Offshore Windfarm	disturbance, in particular red-throated diver from cable installation.		<p>disturbance levels for red throated diver. This combined impact is expected to result in additional or exacerbated effects on the red throated diver, surpassing the individual effects previously identified within <b>Application Document 6.2.4.5 Part 4 Marine Chapter 5 Marine Ornithology</b>.</p> <p>As a result, there is potential for a cumulative <b>moderate adverse (significant)</b> effect on red throated diver</p>	<p>between 1st November – 31st March for Proposed Project offshore cable installation activities in the Outer Thames Estuary SPA and a reduced seasonal restriction between 1st January – 31st March for landfall cable installation activities at the Suffolk Landfall in Aldeburgh. Therefore, there will be <b>no likely significant effect</b> during the construction phase or the operation phase.</p>	
East Anglia ONE North Offshore Windfarm					
East Anglia TWO Offshore Windfarm					
East Anglia THREE Offshore Windfarm					
Nautilus Offshore Interconnector					
Five Estuaries Offshore Windfarm					
Lionlink Offshore Interconnector					

## Table 11.22 Marine Archaeology CEA

11.2.14 All potential cumulative effects were screened out at Stage 2 for all other development. As such, no effects have been carried through to Stage 4.

## Table 11.23 Shipping and Navigation CEA

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
NeuConnect GridLink Interconnector North Falls Offshore Windfarm East Anglia ONE North Offshore Windfarm East Anglia TWO Offshore Windfarm East Anglia THREE	Shared impact pathways are: Passing vessels of all categories: Collisions leading to loss of life and major damage to equipment  Vessel frequently using established routes and areas affected by the Offshore Scheme: Disruption to multiple vessels using established routes and areas due activities of the Offshore Scheme  Anchoring vessels: Vessel drags anchor across exposed cable		<b>No significant cumulative effect.</b>  It is unlikely for both projects to be installing at the same place at the same time. Any cumulative effects during the construction phase are expected to be minor, localised and/or temporary in nature, therefore no significant cumulative effect is expected.  Any cable crossings will be undertaken using agreed crossing designs in	No further cumulative mitigation required.	<b>No significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
Offshore Windfarm Nautilus Offshore Interconnector Five Estuaries Offshore Windfarm	Fishing vessels: Gear snagging  Reduction in Under-Keel Clearance  Vessels navigating with magnetic compass: EMF Interference with marine navigational equipment		<p>accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed cables.</p> <p>The Proposed Project has established mitigation measures including production of communication plans (in the form of a Navigation Installation Plan (NIP)) in order to reduce risk of collisions, vessel traffic disruption, vessels anchoring, and fishing vessels gear snagging, as well as to communicate with other projects to reduce impact of any potential reduction in under-keel clearance. Potential EMF effects are considered to be minimal. Other projects are also assumed to be applying best practice guidance in order to mitigate potential impacts to shipping and navigation, therefore significant</p>		

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			<p>cumulative effects through these pathways are considered unlikely.</p> <p>Vessels navigating in the region are expected to follow standard guidance and avoid fishing over cables, therefore no cumulative effect is foreseen for this impact pathway.</p>		
NEMO Link Thanet Offshore Windfarm	<p>Shared impact pathways are: Passing vessels of all categories: Collisions leading to loss of life and major damage to equipment</p> <p>Vessel frequently using established routes and areas affected by the Offshore Scheme: Disruption to multiple vessels using established routes and areas due activities of the Offshore Scheme</p> <p>Anchoring vessels: Vessel drags anchor across exposed cable</p>		<p><b>No significant cumulative effect.</b></p> <p>As both the NEMO Link and Thanet Offshore Windfarm have already been constructed, there is reduced potential for cumulative effects during the construction phase.</p> <p>Any cable crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets</p>	No further cumulative mitigation required.	<b>No significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
	<p>Fishing vessels: Gear snagging</p> <p>Reduction in Under-Keel Clearance</p> <p>Vessels navigating with magnetic compass: EMF Interference with marine navigational equipment</p>		<p>and protection over the installed cables.</p> <p>The Proposed Project has established mitigation measures including production of communication plans (in the form of a Navigation Installation Plan (NIP)) in order to reduce risks to shipping and navigation, as well as to communicate with other projects to reduce impact of any potential reduction in under-keel clearance. Potential EMF effects are considered to be minimal.</p> <p>Vessels navigating in the region are expected to follow standard guidance and avoid fishing over cables, therefore no cumulative effect is foreseen for this impact pathway.</p>		
Hanson Aggregate	Shared impact pathways are:		<b>No significant cumulative effect.</b>	No further cumulative mitigation required.	<b>No significant</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
Marine Ltd Area 528/2	<p>Passing vessels of all categories: Collisions leading to loss of life and major damage to equipment</p> <p>Vessel frequently using established routes and areas affected by the Offshore Scheme: Disruption to multiple vessels using established routes and areas due activities of the Offshore Scheme</p>		<p>The Proposed Project has established mitigation measures including production of communication plans (in the form of a Navigation Installation Plan (NIP)) in order to reduce risk of collisions and vessel traffic disruption.</p> <p>Any cumulative effects during the construction phase are expected to be minor, localised and/or temporary in nature, therefore no significant cumulative effect is expected.</p>		<b>cumulative effect</b>

### Table 11.24 Commercial Fisheries CEA

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
GridLink Interconnector North Falls Offshore Windfarm East Anglia ONE North Offshore Windfarm East Anglia TWO Offshore Windfarm East Anglia THREE Offshore Windfarm Five Estuaries Offshore Windfarm	Mobile gear fisheries: <b>dredgers; beam and demersal trawlers; seiners (Operation Phase:</b> Displacement of commercial fishing activities)		Cable protection will occupy a small proportion of fishing grounds as identified through fisher consultations and supported by vessel sightings records.  The design of cable the cable protection implemented by the Proposed Project is design to reduce snagging risk for towed gear. It is assumed that this will also be the case for other projects.  Minor significance of effect – <b>no significant cumulative effect</b>	No further cumulative mitigation required.	Minor significance of effect – <b>no significant cumulative effect</b>
Lionlink NEMO Link	Static gear fisheries: <b>pots and traps (Construction Phase:</b> Temporary loss and alteration of fishing grounds)		Should exclusion zones around the cable installation works be implemented at the same time within close proximity and/or within the same fishing grounds, there is	Additional mitigation beyond the Proposed Project's embedded mitigation, and design and control measures:  Timings of any temporary areas of exclusion from fishing grounds will be	Minor significance of effect – <b>no significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			potential for the temporary loss of fishing grounds to have a cumulative effect of <b>moderate significance</b> for static gear fisheries receptors.	clearly communicated via a notice to mariners. Early and regular fisheries engagement. A procedure for the claim of loss of/or damage to fishing gear will be developed.	
	Static gear fisheries: <b>pots and traps (Construction Phase:</b> Temporary displacement of commercial fishing activities and obstruction of navigation routes to commercial fishing grounds)		For each individual Project the exclusion zone around the cable installation works is likely to temporarily displace fishers to other parts of their fishing grounds, likely having a minor significance of effect for static gear fisheries. However, should both exclusion zones be implemented at the same time within close proximity and/or within the same fishing grounds, there is potential for cumulative effects of <b>moderate significance</b> to occur.	A Fisheries Liaison Officer (FLO) and fisheries working group(s) will be maintained throughout installation to ensure project information is effectively disseminated, dialogue is maintained with the commercial fishing industry and access to home ports is maintained.	Minor significance of effect – <b>no significant cumulative effect</b>
	Static gear fisheries: <b>fixed and drift nets (Construction Phase:</b>		Should exclusion zones around the cable installation works be		Minor significance of effect – <b>no</b>



Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
	Temporary loss and alteration of fishing grounds)		implemented at the same time within close proximity and/or within the same fishing grounds, there is potential for the temporary loss of fishing grounds to have a cumulative effect of <b>moderate significance</b> for static gear fisheries receptors.		<b>significant cumulative effect</b>
	Static gear fisheries: <b>fixed and drift nets (Construction Phase:</b> Temporary displacement of commercial fishing activities and obstruction of navigation routes to commercial fishing grounds)		For each individual Project the exclusion zone around the cable installation works is likely to temporarily displace fishers to other parts of their fishing grounds, likely having a minor significance of effect for static gear fisheries. However, should both exclusion zones be implemented at the same time within close proximity and/or within the same fishing grounds, there is potential for cumulative		Minor significance of effect – <b>no significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			effects of <b>moderate significance</b> to occur.		
	Static gear fisheries: <b>fixed and drift nets (Operation Phase:</b> Displacement of commercial fishing activities)		<p>Despite the design of cable protection, the presence of cable protection still represents some snagging risk for drift net fisheries. Unlike mobile gear fisheries, drift netters do to not have the same level control to avoid areas which may present a risk to their gear. This could lead to concentrated effort and increased competition in other fishing grounds.</p> <p>For each individual Project this risk is extremely localised and represents a small proportion of fishing grounds as identified through fisher consultations and supported by vessel sightings records.</p> <p>In isolation this is considered a to have a</p>	As above, with the addition of: Communication and collaboration between developers.	Minor significance of effect – <b>No significant cumulative effect</b>

Project	Effects on shared receptors from the Proposed Project	Effects on shared receptors from the 'other developments'	Assessment of Cumulative Effects	Additional mitigation required for cumulative effect?	Residual cumulative effect?
			minor significance of effect. However, as more cables are installed, and the number of crossings, and therefore locations with cable protection increases, this has potential to have a <b>moderate</b> significance of impact, cumulatively.		

## Table 11.25 Other Sea Users CEA

- 11.2.15 All potential cumulative effects were screened out at Stage 2 for all other development. As such, no effects have been carried through to Stage 4.

## 11.3 Assessment of Total Cumulative Effects

- 11.3.1 The stage 4 assessment above provides a cumulative assessment for each topic with each of the other individual developments taken through to stage 3 and 4 as per the Planning Inspectorate's 'Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment' guidance (Planning Inspectorate, 2024). Due to the large number of other developments assessed a further preliminary assessment has been undertaken which considers an overall cumulative effect with the Proposed Project with all other developments together on shared receptors. This overall assessment per topic is provided in the tables below.
- 11.3.2 It should be noted that any developments above MHWS will be considered and assessed within **Application Document 6.2.2.13 Suffolk Onshore Scheme Inter-Project Cumulative Effects** and **Application Document 6.2.3.13 Kent Onshore Scheme Inter-Project Cumulative Effects**.

**Table 11.26 Physical Environment Assessment of Total Cumulative Effects**

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
Water column	Neuconnect	Should multiple/all project construction operations occur simultaneously, this will likely cause a substantial increase in levels of suspended sediment concentrations. This may also result in increased levels of contaminants becoming mobilised from the seabed, potentially reducing water quality across a wide area.	Not Significant
	GridLink Interconnector		
	North Falls Offshore Windfarm	The impact will be temporary as the coarser sediment fractions (gravel and coarse sand) ejected into the water column, will be lifted a few metres and will subsequently re-deposit either directly back into the trench or within a few metres of each development within timescales in the order of seconds to tens of seconds.	
	East Anglia ONE North Offshore Windfarm		
	East Anglia TWO Offshore Windfarm	The finer fractions (including fine sands, silts and clays) will be transported further by prevailing tides and currents, this will cause SSC levels to reduce across the wide area associated with all the developments listed in the shortlist, as the particles are dispersed through the water column and diluted.	
	East Anglia THREE Offshore Windfarm		
	Nautilus Offshore Interconnector	The impact of increased suspended sediment concentration and turbidity, and the potential for reduced water quality could result in a <b>Significant</b> impact should all the projects simultaneously carry out their construction operations.	
Five Estuaries Offshore Windfarm	However, each project is expected to implement similar mitigation to the Proposed Project's Offshore Scheme in order to avoid or reduce impacts to the physical environment and Physical Environment and also		

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
	Lionlink Offshore Interconnector Hanson Aggregate Marine Ltd Area 528/2	avoid simultaneous construction activities that could lead to large amounts of sediment disturbance. Therefore, the cumulative impact is assessed as <b>Not Significant</b> .	
Seafloor morphology and seafloor morphological features		<p>The wider area of seafloor morphology and seafloor morphological features (i.e. bedforms) may be altered during the simultaneous installation activities (sand wave levelling and pre-sweeping activities).</p> <p>However, seafloor and bedform recovery is expected via natural sediment transport processes once activities have stopped. The developments have undergone EIAs with suitable mitigation measures recommended and therefore any impacts will be negligible.</p>	<b>Not Significant</b>
Coraline Crag Ridges	Sizewell C Nuclear Power Plant  East Anglia ONE North Offshore Windfarm  East Anglia TWO Offshore Windfarm  East Anglia THREE Offshore Windfarm	<p>These projects are in close proximity to the Coraline Crag Ridges. The cumulative impact of the projects on this geological feature may be to change the surficial sediment composition of the Ridges as the combined amount of sediment suspended during cable burial operations are transported and deposited onto the ridges. The impact is likely to be temporary as the finer sediment is likely to be re-suspended under higher current speeds or storm wave activity. However, some small, localized zones that are sheltered from current and wave action may experience permanent change to the sediment composition.</p> <p>Commitments have been made for East Anglia ONE:</p> <ul style="list-style-type: none"> <li>To install the export cable using HDD techniques to minimise disturbance south of the Coraline Crag ridges and at landfall; and</li> </ul>	<b>Not Significant</b>

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
		<ul style="list-style-type: none"> <li>selection of the preferred landfall location for the export cable towards the southern end of the offshore cable corridor boundary that avoids the Coraline Crag outcrop.</li> </ul> <p>Based on these commitments, the impact on the Coraline Crag sedimentary composition is likely <b>to have no significant cumulative effect</b>.</p>	

**Table 11.27 Benthic Ecology Assessment of Total Cumulative Effects**

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
Benthic ecology	Sizewell C Nuclear Power Station	Crossings are included as part of the project design and do not constitute cumulative effects. Any additional permanent habitat loss is only expected to occur within localised areas for the other projects (mostly at other crossings) and will not result in a significant loss of habitat cumulatively. Similarly, any temporary physical disturbance is also expected to be minor and localised compared to the wide availability of habitat.	Not significant
	Neuconnect		
	GridLink Interconnector		
	North Falls Offshore Windfarm	Any increase in SSC and sediment deposition is expected to deposit within a very localised area of the disturbance, given the coarse nature of the sediment within the Study Area. It is unlikely that disturbance will occur at the	
	East Anglia ONE North Offshore Windfarm		

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
	East Anglia TWO Offshore Windfarm	same time, but if it did, it would return to background levels within very short timescales.	
	East Anglia THREE Offshore Windfarm	Disturbance to benthic ecology from thermal emissions and effects from EMF emissions are also expected to occur during the operational phases of all relevant developments. However, although it is acknowledged that there is the potential for increased EMF and heat emissions at cable crossings, the effects will be highly localised and limited. The number of crossings, and therefore the area over which EMF and thermal emissions could be increased, is considered to be small.	
	Nautilus Offshore Interconnector		
	Five Estuaries Offshore Windfarm		
	Lionlink Offshore Interconnector		
	NEMO Link		
	Thanet Offshore Windfarm		

**Table 11.28 Fish and Shellfish Assessment of Total Cumulative Effects**

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
Fish and shellfish	Sizewell C Nuclear Power Station	Crossings are included as part of the project design and do not constitute cumulative effects. Any additional permanent habitat loss is only expected to occur within localised areas for the other projects (mostly at other crossings) and will not result in a significant loss of habitat cumulatively.	<b>Not Significant</b>
	Neuconnect		
	GridLink Interconnector		



Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
	North Falls Offshore Windfarm	Any increase in SSC and sediment deposition is expected to deposit within a very localised area of the disturbance, given the coarse nature of the sediment within the Study Area. It is unlikely that disturbance will occur at the same time, but if it did, it would return to background levels within very short timescales.	
	East Anglia ONE North Offshore Windfarm		
	East Anglia TWO Offshore Windfarm	Any physical disturbance from the short-list projects will be localised to the cable installation activities of these projects. The Study Area is not considered to represent important herring spawning grounds. The sandeel habitat likely to be affected is considered important, but suitable sandeel habitat is widespread in the central and southern North Sea. Therefore, any small loss of habitat is considered to be very minor compared to the widespread availability of suitable sandeel habitat. Similarly, any temporary physical disturbance is also expected to be minor and localised compared to the wide availability of habitat.	
	East Anglia THREE Offshore Windfarm		
	Nautilus Offshore Interconnector		
	Five Estuaries Offshore Windfarm		
	Lionlink Offshore Interconnector	Underwater sound is expected to be produced during the construction phase by all other developments and the Offshore Scheme. During construction of the Offshore Scheme, the only underwater sound perceptible to fish will be produced during the geophysical surveys, which are small-scale and minor. Furthermore, effects to fish are only considered to occur within 50 m of the sound source. This is expected to be similar for the relevant other developments. Underwater sound production is also expected to be very short-term and temporary, and therefore the potential for overlap between sound-producing activities for all relevant other developments is considered to be negligible.	
	NEMO Link		
	Thanet Offshore Windfarm		
		Disturbance to fish and shellfish due to subsea cable thermal emissions and effects from electromagnetic field (EMF) emissions are also expected to occur during the operational phases of all relevant developments. However, although it is acknowledged that there is the potential for increased EMF and	

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
		heat emissions at cable crossings, the effects will be highly localised and limited. The number of crossings, and therefore the area over which EMF and thermal emissions could be increased, is considered to be small compared to overall available and suitable fish habitat in the North Sea. Furthermore, sea water in the North Sea varies seasonally with natural fluctuations in temperature. Therefore, fish are expected to be able to accommodate small changes in EMF and thermal emissions.	

**Table 11.29 Marine Mammal Assessment of Total Cumulative Effects**

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
Marine Mammals	<div>Sizewell C Nuclear Power Station</div> <div>Neuconnect</div> <div>GridLink Interconnector</div> <div>North Falls Offshore Windfarm</div> <div>East Anglia ONE North Offshore Windfarm</div> <div>East Anglia TWO Offshore Windfarm</div>	Overlaps in construction phases may result in cumulative underwater sound (UWS) or airborne sound disturbance. However, the maximum ZOI for disturbance from UWS produced during construction or maintenance during the operational phase is 5 km. Considering the standard mitigation measures required for activities involving underwater sound, disturbance is expected to be low level avoidance. These standard mitigation measures include the presence of a suitably qualified Marine mammal observer (MMO) and passive acoustic monitoring (PAM) operator (if applicable) on any vessel undertaking SBP survey activities, as per the 2017 “ <i>JNCC guidelines for minimising the risk of injury to marine mammals from geophysical survey</i> ” (JNCC, 2017) (please refer to <b>Application Document 7.5.11 Outline Marine Mammal Mitigation Plan</b> for further detail). As a result of the application of this mitigation plan, the effects reported in <b>Application Document 6.2.4.4 Marine Mammals</b> , are reported as negligible. Therefore,	<b>Not Significant</b>

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
	<div>East Anglia THREE Offshore Windfarm</div> <div>Nautilus Offshore Interconnector</div> <div>Five Estuaries Offshore Windfarm</div> <div>Lionlink Offshore Interconnector</div> <div>NEMO Link</div> <div>Thanet Offshore Windfarm</div>	<p>there is no potential for these effects to combine with the effects of other relevant developments such that a significant cumulative effect could occur. Please refer to Table 5.4 Inter-project cumulative effects - indicative screening matrix within <b>Application Document 6.3.1.5.A Cumulative Effects Assessment Methodologies</b> which concludes that where the significance for one of the developments is negligible there is no potential for cumulative effects as negligible effects have no realistic potential to be additive.</p> <p>In addition, it can be reasonably assumed that other relevant developments will follow the JNCC guidelines, similar to the Proposed Projects actions and commitments (see <b>Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)</b>, for the control and management measures in relation to the JNCC guidelines for marine mammals).</p> <p>For indirect effects from impacts to prey species, effects from increased SSC, thermal emissions or EMF emissions have been assessed as not significant to fish species. Therefore, it is unlikely that there will be any indirect effects to marine mammals which may prey upon these species.</p>	

**Table 11.30 Marine Ornithology Assessment of Total Cumulative Effects**

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
Ornithological features	Due to the implementation of seasonal restrictions within the Outer Thames Estuary SPA during the construction phase (with the exception of pre-lay grapnel run) (this restriction measure is outlined within <b>Application</b>	No cumulative effects are expected	<b>Not significant</b>

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
	Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC) and secured by Application Document 7.8 Red Throated Diver Protocol), there have been no other developments carried forward for further assessment.		

**Table 11.31 Marine Archaeology Assessment of Total Cumulative Effects**

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
Known and potential palaeogeographic features and prehistoric material	All shortlisted projects	The short-listed projects will undergo (or have undergone) EIA with suitable mitigation measures recommended, including avoidance, micro-siting, assessment of geophysical and geotechnical survey data, watching briefs and other anomaly investigations, and implementation of a Protocol for Archaeological Discoveries, and therefore any impacts will be negligible. The overall inter-projects cumulative effects are considered to be not significant.	Not Significant
Known and potential maritime and aviation assets	All shortlisted projects	The short-listed projects will undergo (or have undergone) EIA with suitable mitigation measures recommended, including avoidance, micro-siting, assessment of geophysical and geotechnical survey data, watching briefs and other anomaly investigations, and implementation of a Protocol for Archaeological Discoveries, and therefore any impacts will be negligible. The overall inter-projects cumulative effects are considered to be not significant.	Not Significant

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
Coastal and intertidal heritage assets (known and potential palaeogeographic features and prehistoric material, historic terrestrial, marine and aviation features)	All shortlisted projects	The short-listed projects will undergo (or have undergone) EIA with suitable mitigation measures recommended, including avoidance, micro-siting, assessment of geophysical and geotechnical survey data, watching briefs and other anomaly investigations, and implementation of a Protocol for Archaeological Discoveries, and therefore any impacts will be negligible. The overall inter-projects cumulative effects are considered to be not significant.	Not Significant
Historic seascape character of the region	All shortlisted projects.	The short-listed projects will undergo (or have undergone) EIA with suitable mitigation measures recommended, for instance updating the Historic Seascape Character assessment for the region with the inclusion of additional offshore developments, and therefore any impacts will be negligible. The overall inter-projects cumulative effects are considered to be not significant.	Not Significant

**Table 11.32 Shipping and Navigation Assessment of Total Cumulative Effects**

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
Passing vessels (all categories)	NeuConnect Interconnector	Proposed Project cable installation vessel activities may coincide with other project vessel cable	With the implementation of the recommended mitigation

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
	GridLink Interconnector North Falls Offshore Windfarm East Anglia ONE North Offshore Windfarm East Anglia TWO Offshore Windfarm East Anglia THREE Offshore Windfarm Nautilus Offshore Interconnector Five Estuaries Offshore Windfarm Hanson Aggregate Marine Ltd Area 528/2 NEMO Link Thanet Offshore Windfarm	<p>installation, windfarm installation, or aggregate extraction activities, potentially increasing the risk of vessel collisions.</p> <p>This is of particular relevance within Pegwell Bay which is already an area of shallow and dynamic water depth, and where the NEMO Link and Thanet Offshore Windfarm export cables are currently also planned to route and make landfall.</p> <p>However, such an impact would be for a limited time period.</p> <p>With additional mitigations including communication plans and protocols, such concurrent activities will be minimised or avoided where practicable, and overall risks reduced, and therefore the potential effect is expected to be minimal.</p>	<p>measures, the significance of effect could be considered minor</p> <p>significance of effect – <b>Not significant.</b></p>
Vessels frequently using established routes and areas affected by the Offshore Scheme activities	NeuConnect Interconnector GridLink Interconnector	<p>Proposed Project cable installation vessel activities may coincide with other project vessel cable installation, windfarm installation, or aggregate extraction activities, potentially causing disruption to vessels using established routes and areas, due to further reduced sea room.</p>	<p>With the implementation of the recommended mitigation measures, the significance of effect could be considered</p>

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
	<p>North Falls Offshore Windfarm</p> <p>East Anglia ONE North Offshore Windfarm</p> <p>East Anglia TWO Offshore Windfarm</p> <p>East Anglia THREE Offshore Windfarm</p> <p>Nautilus Offshore Interconnector</p> <p>Five Estuaries Offshore Windfarm</p> <p>Hanson Aggregate Marine Ltd Area 528/2</p> <p>NEMO Link</p> <p>Thanet Offshore Windfarm</p>	<p>This is of particular relevance within Pegwell Bay which is already an area of shallow and dynamic water depth, and where the NEMO Link and Thanet Offshore Windfarm export cables are currently also planned to route and make landfall.</p> <p>However, such an impact would be for a limited time period.</p> <p>With additional mitigations including communication plans and protocols, such concurrent activities will be minimised or avoided where practicable, and overall risks reduced, and therefore the potential effect is expected to be minimal.</p>	<p>minor significance of effect – <b>Not significant.</b></p>
Anchoring vessels	<p>NeuConnect Interconnector</p> <p>GridLink Interconnector</p> <p>North Falls Offshore Windfarm</p>	<p>Cable crossings between the Proposed Project and other projects will be undertaken using crossing designs and schedules in accordance with established crossings agreements with other cable or windfarm Projects, which will ensure appropriate separation and protective structures are in place.</p>	<p>Minor significance of effect – <b>Not significant.</b></p>

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
	<p>East Anglia ONE North Offshore Windfarm</p> <p>East Anglia TWO Offshore Windfarm</p> <p>East Anglia THREE Offshore Windfarm</p> <p>Nautilus Offshore Interconnector</p> <p>Five Estuaries Offshore Windfarm</p> <p>NEMO Link</p> <p>Thanet Offshore Windfarm</p>	<p>Therefore, this presents only an incremental increase in potential impact to anchoring vessels which is suitably addressed via a risk-based burial approach and crossing design.</p>	
Fishing vessels	<p>NeuConnect Interconnector</p> <p>GridLink Interconnector</p> <p>North Falls Offshore Windfarm</p> <p>East Anglia ONE North Offshore Windfarm</p>	<p>Cable crossings between the Proposed Project and other projects will be undertaken using crossing designs and schedules in accordance with established crossings agreements with other cable or windfarm Projects, which will ensure appropriate separation and protective structures are in place.</p> <p>Therefore, this presents only an incremental increase in potential risks to fishing gear which is suitably addressed via a risk-based burial approach and crossing design.</p>	Minor significance of effect – <b>Not significant.</b>



Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
	<p>East Anglia TWO Offshore Windfarm</p> <p>East Anglia THREE Offshore Windfarm</p> <p>Nautilus Offshore Interconnector</p> <p>Five Estuaries Offshore Windfarm</p> <p>NEMO Link</p> <p>Thanet Offshore Windfarm</p>		
Reduction in under-keel clearance, affecting deep draught vessels and passing vessels (all categories)	<p>NeuConnect Interconnector</p> <p>GridLink Interconnector</p> <p>North Falls Offshore Windfarm</p> <p>East Anglia ONE North Offshore Windfarm</p> <p>East Anglia TWO Offshore Windfarm</p>	<p>Cable crossings between the Proposed Project and other projects will be undertaken using crossing designs in accordance with established crossings agreements with other cable or windfarm Projects, and with the aim of minimising reduction of under-keel clearance at those crossing locations.</p> <p>This is of particular relevance within Pegwell Bay which is already an area of shallow and dynamic water depth, and where the NEMO Link and Thanet Offshore Windfarm export cables are currently also planned to route and make landfall.</p> <p>With additional mitigations including coordination between projects, cable crossing agreements, and communication plans and protocols, such effects</p>	With the implementation of the recommended mitigation measures, the significance of effect could be considered minor – <b>Not significant.</b>

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
	East Anglia THREE Offshore Windfarm  Nautilus Offshore Interconnector  Five Estuaries Offshore Windfarm  NEMO Link  Thanet Offshore Windfarm	<p>will be minimised or avoided where practicable, and overall risks reduced, and therefore the potential effect is expected to be minimal.</p>	
Vessels navigating with magnetic compass	NeuConnect Interconnector  GridLink Interconnector  North Falls Offshore Windfarm  East Anglia ONE North Offshore Windfarm  East Anglia TWO Offshore Windfarm  East Anglia THREE Offshore Windfarm  Nautilus Offshore Interconnector	<p>Vessels navigating with magnetic compass can experience interference from Electro Magnetic Fields (EMF) which may be present along offshore cables.</p> <p>Minimal EMF effects are expected from the Proposed Project.</p> <p>Cable crossings between the Proposed Project and other cables owners will be undertaken using crossing designs in accordance with established crossings agreements with other cable and windfarm Projects, which will consider potential EMF interactions and cumulative effects in order to minimise them.</p>	Minor significance of effect – <b>Not significant.</b>

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
	Five Estuaries Offshore Windfarm NEMO Link Thanet Offshore Windfarm		

**Table 11.33 Commercial Fisheries Assessment of Total Cumulative Effects**

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
Mobile gear fisheries: <b>dredgers; beam and demersal trawlers; seiners</b>	GridLink Interconnector North Falls Offshore Windfarm East Anglia ONE North Offshore Windfarm East Anglia TWO Offshore Windfarm East Anglia	Cable protection will occupy a small proportion of fishing grounds as identified through fisher consultations and supported by vessel sightings records.  The design of cable the cable protection implemented by the Proposed Project is design to reduce snagging risk. It is assumed that this will also be the case for other projects.  Minor significance of effect – <b>no significant cumulative effect</b>	Minor significance of effect – <b>Not significant.</b>
Static gear fisheries: <b>pots and traps</b>	THREE Offshore Windfarm Five Estuaries Offshore Windfarm Lionlink NEMO Link	Should exclusion zones around the cable installation works be implemented at the same time within close proximity and/or within the same fishing grounds, there is potential for the temporary loss of fishing grounds and/or displacement of fishing activity to have a cumulative effect of <b>moderate</b> significance for static gear fisheries receptors, during the construction phase.	With the implementation of the recommended additional mitigation measures, the significance of effect could be considered minor – <b>Not significant.</b>

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
		<p>Additional mitigation measures to address this include:</p> <p>Communication and collaborative timings between developers for both projects</p> <p>Early and regular fisheries engagement</p> <p>Clear compensation agreements for loss, damage and relocation fishing gear</p> <p>Additional care and consideration required in locations approaching landfall, particularly in Pegwell Bay</p>	
Static gear fisheries: <b>fixed and drift nets</b>		<p>The same assessment for pots and traps during the construction phase applies to fixed and drift nets. However, there is additional potential for drift and fixed netters to experience <b>moderate</b> cumulative effects through displacement during the operation phase. This is due to the presence of cable protection still representing some snagging risk for drift net fisheries, despite its design. Unlike mobile gear fisheries, drift netters do to not have the same level control to avoid areas which may present a risk to their gear, which could lead to concentrated effort and increased competition in other fishing grounds.</p> <p>For a single Project this is considered a to have a minor significance of effect. However, as more cables are installed, and the number of crossings, and therefore locations with cable protection increases, the cumulative effect also has the potential to increase.</p>	With the implementation of the recommended additional mitigation measures, the significance of effect could be considered minor – <b>Not significant.</b>

**Table 11.34 Other Sea Users Assessment of Total Cumulative Effects**

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of cumulative effects
Marine Tourism and Recreation	The potential interactions with the Proposed Project and the short-listed projects present minimal cumulative effects to other sea users. As such none of the short-listed projects are progressed to stage 3 and stage 4 as <b>no significant effects</b> are likely.		
Offshore Infrastructure	The potential interactions with the Proposed Project and the short-listed projects present minimal cumulative effects to other sea users. As such none of the short-listed projects are progressed to stage 3 and stage 4 as <b>no significant effects</b> are likely.		

## 11.4 Summary of Total Cumulative Effects

### Physical Environment

- 11.4.1 Where appropriate, the short-listed projects will undergo/have undergone full environmental impact assessments recommending suitable mitigation measures to remove or reduce impact on marine physical environment receptors.
- 11.4.2 Due to other projects overlapping or being in close proximity to the Proposed Project, there is potential for cumulative impacts on marine physical environment receptors. For projects that overlap temporally and spatially, understanding the construction techniques used for each development and ensuring these take into account physical environment receptors is essential. This assessment for the Proposed Project has been included in the ES based on the design information to date.
- 11.4.3 The main considerations associated with the cumulative effects between the shortlisted developments are:
- An increase in water column turbidity/suspended sediment concentration and associated reduction in water quality;
  - disturbance to the seafloor morphology and destruction of seafloor morphological features (i.e. bedforms); and
  - the potential change to the Coraline Crag Ridges surficial sedimentary makeup.
- 11.4.4 The overall cumulative assessment of the combined effects of the Proposed Project and other developments concludes there is likely **no significant impact**.

### Benthic Ecology

- 11.4.5 Due to other projects overlapping or being in close proximity to the Proposed Project, there is potential for direct and indirect cumulative impacts on benthic ecology receptors.
- 11.4.6 The impact assessment has determined that effects caused by the cumulative impact the Proposed Project and nearby projects are likely to be highly localised and short-term. For each potential impact, the assessment is considered to be **not significant**. Each project is expected to implement similar mitigation to the Proposed Project in order to avoid or reduce impacts to fish and shellfish receptors. The overall assessment of cumulative effects concluded no significant effects are likely between the Proposed Project and other developments.

### Fish and Shellfish Ecology

- 11.4.7 Due to other projects overlapping or being in close proximity to the Proposed Project, there is potential for direct and indirect cumulative impacts on fish and shellfish receptors.
- 11.4.8 The impact assessment has determined that effects caused by the cumulative impact the Proposed Project and nearby projects are likely to be highly localised and short-term. For each potential impact, the assessment is considered to be **not significant**. Each project is expected to implement similar mitigation to the Proposed Project in order to avoid or reduce impacts to fish and shellfish receptors. The overall assessment

of cumulative effects concluded no significant effects are likely between the Proposed Project and other developments.

## Marine Mammals

- 11.4.9 Due to other projects overlapping or being in close proximity to the Proposed Project, there is potential for direct and indirect cumulative impacts on marine mammal receptors.
- 11.4.10 The impact assessment has determined that effects caused by the cumulative impact the Proposed Project and nearby projects are likely to be highly localised and short-term. For each potential impact, the assessment is considered to be not significant. Each project is expected to implement similar mitigation to the Proposed Project in order to avoid or reduce impacts to marine mammal receptors. The overall assessment of cumulative effects concluded **no significant effects** are likely between the Proposed Project and other developments.

## Marine Archaeology

- 11.4.11 Due to other projects overlapping or being in close proximity to the Proposed Project, there is potential cumulative impacts on marine archaeological receptors, caused by direct physical impacts such as project-related infrastructure, and changes to sedimentary and hydrographic regimes causing indirect impacts to receptors.
- 11.4.12 For projects that overlap, understanding the construction techniques required for installing both project's cables, methods for their maintenance and the proposal for decommissioning (if known), and ensuring these take into account sub-seabed and seabed receptors (known or otherwise) is essential. This assessment of direct and indirect impacts for the Proposed Project has been included in the ES based on the design information to date. Furthermore, owing to the number of offshore wind developments, interconnectors and aggregate areas, existing or proposed, located off the south and east coasts, a large area of the seabed will have been, or will be, investigated for EIA purposes leading to the discovery of more archaeological receptors that may require further investigation. Further investigation will need to be decided and undertaken in liaison with the Archaeological Curator, Historic England, and the National Grid Electricity Transmission plc (National Grid), and could ultimately lead to a significant site being excavated, recovered material and finds being conserved and accessioned to a museum, and finally dissemination of all associated recording and reporting. Dissemination of the archaeological investigations and outcomes for these projects further enhances the current level of knowledge and understanding on a local, regional and national, even international, scale. It is possible that a regional thematic approach to dealing with these types of seabed resources could be initiated.
- 11.4.13 Where appropriate though, the short-listed projects have already undergone/will undergo full EIA with suitable mitigation measures recommended and implemented for the duration of the projects to remove or reduce impact on marine archaeological receptors. Typical mitigation measures recommended for marine archaeological receptors include assessment of geophysical and geotechnical survey data, avoidance, micro-siting, watching briefs and other anomaly investigations, and implementation of a Protocol for Archaeological Discoveries. With the implementation of such measures, the overall preliminary assessment of cumulative effects concluded that **no significant effects** are likely between the Proposed Project and other developments.
- 11.4.14

## Shipping and Navigation

- 11.4.15 The potential interactions between the Proposed Project and the short-listed projects are considered to present minimal cumulative effects to shipping and navigation. However, it is necessary for the additional mitigation measures to be in place in order to avoid significant cumulative effects for the Proposed Project, especially during the construction and operation phases.
- 11.4.16 Pegwell Bay is a region of particular concern, as its waters are shallow and changeable, and two other Project cables also route and make landfall there (NEMO Link and Thanet Offshore Windfarm export cable), presenting particular potential for significant cumulative effects regarding collision risk, disruption to vessels using established routes and areas, and under-keel clearance.
- 11.4.17 Communication plans and protocols, as identified in **Application Document 7.5.2 Offshore Construction Environmental Management Plan** and **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**, will minimise cumulative effects through enabling coordination of installation activities, and development of appropriate cable crossings agreements which ensure suitable protections where necessary and avoid reduction of under-keel clearance and EMF effects.
- 11.4.18 With implementation of such mitigation measures, and a risk based burial approach, shipping and navigation cumulative effects are therefore considered to be **not likely to be significant**.

## Commercial Fisheries

- 11.4.19 The potential interactions between the Proposed Project and the short-listed projects are considered to present minimal cumulative effects for mobile gear fisheries. However, there is potential for static gear fisheries (pots and traps; fixed and drift nets) to experience significant cumulative effects during the construction and operation phases of the Proposed Project, if not considered carefully.
- 11.4.20 The key elements which underpin the potential for significant effects to occur comprise:
- The location and timing of exclusion zones around installation works;
  - the details of the compensation measures for fishers that each project commits to; and
  - the cumulative number of locations where cable protection is required.
- 11.4.21 The developments listed in Table 11.33 have designs which either cross / overlap the Offshore Marine Scheme, or could make landfall in close proximity / within the same fishing grounds as the Offshore Marine Scheme, and have the potential for overlapping timescales for installation activities or operations. As such, there is potential for the exclusion zones associated with each project's cable installation. This has the potential to increase the magnitude of effect for sensitive fisheries receptors.
- 11.4.22 To mitigate against this occurrence, a Fisheries Liaison Officer (FLO) and fisheries working group(s) will be maintained throughout installation to ensure project information is effectively disseminated, dialogue is maintained with the commercial fishing industry and access to home ports is maintained. Additionally, the developer will maintain communications with other developments in the region with regard to respective installation timings and location.



- 11.4.23 A procedure for the claim of loss of / or damage to fishing gear will also be developed as part of an evidence-based cooperation agreement between the development and fisheries stakeholders.
- 11.4.24 Rock protection will be installed where cable protection is necessary. This will be designed with a 1:3 profile and flat crests, intended to prevent the risk of mobile fishing gears snagging. Post installation surveys of the Offshore Scheme will take place to check the depth of lowering and assess the potential snagging risk posed by the rock protection with regard to bottom drift nets. There will also be ongoing consultation with fishers regarding cable protection design. Additionally, As-built locations of cable and external protection will be supplied to the UK Hydrographic Office (UKHO) (Admiralty) and The Crown Estate and Kingfisher (KIS-ORCA).
- 11.4.25 With the implementation of these mitigation measures, the preliminary assessment of cumulative effects considers there to be **no likely significant cumulative effects** to commercial fisheries receptors.

## Other Sea Users

- 11.4.26 The potential interactions with the Proposed Project and the short-listed projects present minimal cumulative effects to other sea users. As such none of the short-listed projects are progressed to stage 3 and stage 4. Broadly, the small spatial, temporal, and transient footprint of the construction operation limits interactions and permits straight-forward management or minimisation of any residual interaction potential. The operational phase of the Proposed Project principally interacts with the shortlisted projects through crossing/proximity agreements with third-party subsea cable asset owners and aggregate extraction site rights holders. Crossings will be undertaken using agreed crossing designs and schedules, in accordance with crossing agreements and will ensure suitable protections where necessary. These crossings are included as part of the project design and are not therefore considered as constituting cumulative effects. The proximity of the proposed project to aggregates and mining agreement sites presents a small potential for dredging and mining vessels to interact with the subsea asset however proximity agreements shall be established to manage risks and minimise disruption. The overall preliminary assessment of cumulative effects concluded **no significant effects** are likely between the Proposed Project and other developments.

## 11.5 Overall summary

- 11.5.1 The assessment of inter-project cumulative effects for the Proposed Project and shortlisted developments identified no significant effects after the application of mitigation measures for all topics.

## 11.6 References

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